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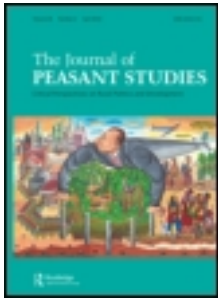
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Inverting the impacts: Mining, conservation and sustainability claims near the Rio Tinto/QMM ilmenite mine in Southeast Madagascar

Caroline Seagle

This paper traces a genealogy of land access and legitimization strategies culminating in the current convergence of mining and conservation in Southeast Madagascar, contributing to recent debates analyzing the commonalities and interdependencies between seemingly discrete types of land acquisitions. Drawing upon research carried out near the Rio Tinto/QMM ilmenite mine in 2009 (January–March), it focuses on how local Malagasy land users are incorporated into new forms of inclusion (into the neoliberal capitalist economy) and exclusion (from land-based, subsistence activities) resulting from private sector engagements in conservation and sustainability. Sustainability tropes and corporate partnerships with international conservation NGOs were found to play a part in land access, in part through the neoliberal project of commodifying, economically valuing and objectifying nature. Through a process of mimesis (of conservation NGOs) and alterity ('othering' land users), Rio Tinto's process of creating scarcity of biodiversity paradoxically lends support to the company's claim to be 'saving' biodiversity from local Malagasy people; this is described as a process of inversion, wherein actual mining impacts are abstracted and remediated as part of a broader sustainable development strategy.

Keywords: mining; biodiversity offsets; conservation; sustainability; Madagascar

Introduction

Current debates about the so-called global 'land grab' frequently label the production of food crops, biofuels development and large-scale mineral extraction as the main drivers of foreign interest in Africa's supposedly 'un(der)-used' lands (Cotula *et al.* 2009, Zoomers 2010, World Bank 2010, FOE 2010). More recently, widespread concerns over the impacts of biodiversity protection schemes on forest-dependant peoples (see Harper 2002, Walsh 2005, Keller 2008, Pollini 2007, Brockington, Duffy and Igoe 2008) – sometimes resulting in mass evictions, environmental injustices and livelihood shifts – have led scholars to draw parallels

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between both conservation and ‘land grabbing’ (Vidal 2008, LDPI 2011, ILC 2012, IEN 2010), or what has been coined ‘green grabbing’ (this issue). Olivier de Schutter (2009, 4) recently linked the expansion of carbon markets for REDD (Reducing Emissions from Deforestation and Degradation of Forests) to ‘the development of large-scale leases or acquisitions’, thus clearly associating land deals and global conservation aims.

However, claims to and acquisitions of land in the global South are often analyzed discretely, thereby failing to capture the complex relationships between different types of land acquisitions, despite the commonalities in (neoliberal) ideology, discursive frame, market logic, and ultimately local impacts. This paper builds upon important recent scholarship seeking to examine the typologies, linkages and interdependencies between various types of acquisitions (Hall 2011, Borras *et al.* 2011, Peluso and Lund 2011) including the confluence of mineral extraction and mining (see West 2006). Relating the results of fieldwork (January–March 2009) carried out near the Rio Tinto/QMM ilmenite (titanium dioxide, an industrial whitener) mine in Fort Dauphin, Southeast Madagascar,¹ it examines the recent convergence of multinational mining and biodiversity conservation in Madagascar. The purpose of this paper is to put empirical case studies of mining impacts on ‘local’ land users² in dialogue with the discourses, media and land access strategies used by the mining company. It argues that the extractive industry’s necessary engagement with conservation may characterize a dual and interdependent mode of accessing and acquiring land. Through neoliberal capitalist circuits, corporate engagements in sustainability discourses and remediation schemes such as ‘biodiversity offsetting’, a new political economy of mineral extraction is emerging, wherein mining and conservation encompass two sides of the same coin, and overlapping landscapes of extraction and protection, reminiscent of the French colonial period (Sodikoff 2005), increasingly impact local land use and access regimes. Within this framework, a dual and conflicting narrative is advanced: through a process of creating scarcity of biodiversity, Rio Tinto/QMM are actively saving biodiversity.

Drawing upon Tsing (2000, 118) who argues that corporate appeals to capital investment are embedded in an ‘economy of appearances’ involving both dramatic ‘spectacle’ (see Igoe 2010) and an exaggeration of profit potential, it is argued that multinational ‘performances of sustainability’ involve a play of both media and discourse which greatly facilitates land access and legitimacy. These performances are built upon (to draw upon Taussig 1993) a process of *mimesis* (of conservationist discourse/media) and *alterity* (othering ‘local’ people impacted by the mines). Taussig (1993) posited that mimesis enables the copier to take on the power of the copied (13, 16). In mimicking of conservationist media (websites, images, scientific reports) and discourses of degradation, Rio Tinto/QMM adapts this power by repositioning local land users as the ‘environmental Other’ – ecologically destructive,

¹Rio Tinto is operating through its Québec subsidiary, QIT, and QMM (QIT Madagascar Minerals). Local inhabitants often refer to the mining company as QMM. The ‘mining company’ is here referred to as Rio Tinto/QMM.

²‘Local’ is by no means an analytically exclusive category. People interviewed had different and complex interests, values, socioeconomic status, life histories, livelihood strategies, opinions, and reactions to the project. In turn, power hierarchies shaping political and social relations, including age and gender, play an important role in defining ‘local’ dynamics. Interviews were primarily conducted in rural villages, and do not necessarily represent the views of all people within these villages.

trapped in the past, isolated from markets, in need of being trained (through Rio Tinto/QMM's development apparatus) to be more sustainable. Alterity – or 'othering', as it is used here, and processes of exclusion in turn assist in making identity production more legible (Butler 2000, 31). Enacting this exclusion, Rio Tinto/QMM suggest that – despite the deforestation of 6,000 hectares (ha) of biodiverse littoral (coastal) rainforest targeted for strip-mining (see Figure 1), the forest would have gone anyway over the next 20 years due to the 'unsustainable use' of forest resources by local populations (BBOP 2009, 19). This argument will be unpacked and critically examined. By refocusing international attention on the environmentally 'irrational' practices of land dependent people (Rio Tinto/QMM 2009, 2), Rio Tinto/QMM invert the impacts of the mine on individuals by blurring boundaries between local compensation, 'gifts' of sustainable development and the company's broader commitments to offset biodiversity loss. Less about achieving capital investment, it will be argued that global 'performances of sustainability' have become an inextricable part of market capitalist competition and expansion.

This paper proceeds as follows: first, a brief discussion the Rio Tinto/QMM mine context will be situated within the context of corporate engagements in sustainability, mining-conservation partnerships and Madagascar's environmental governance sphere. The two sections that follow will relate empirical material to analyze how, through a broader 'offset ideology' – which is premised upon the monetization of nature and market rationality – Rio Tinto/QMM 'invert' the impacts of the mine both locally (Section 3) and globally (Section 4) through a process of mimicking conservation and 'othering' local land users. Section 3 details local impacts, where the construction of a dam, land dispossession, lost access to littoral forest resources, resettlement, the enforcement of conservation, removal of tombs, and decimation of

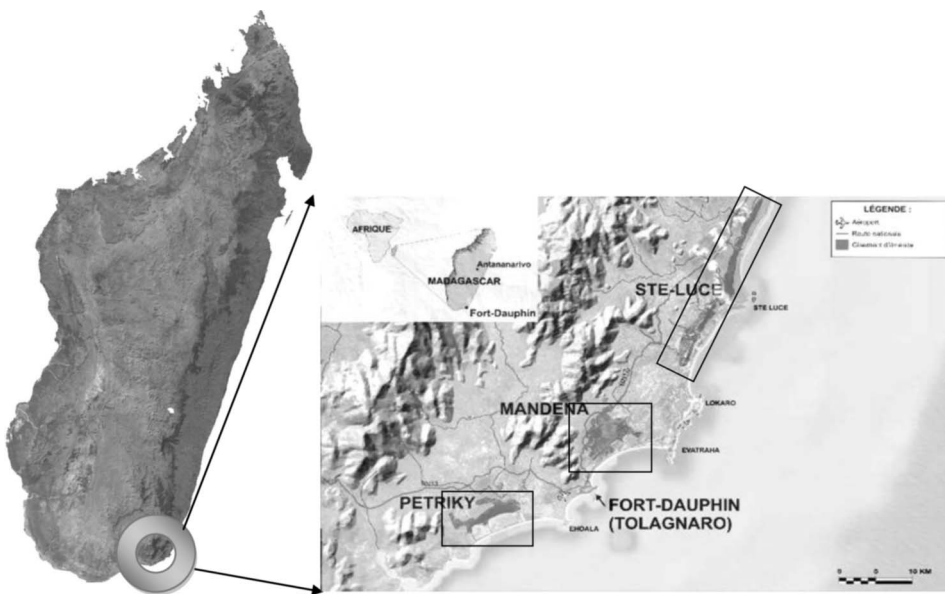


Figure 1. Overview of three mining sites (enclosed by rectangles): Petriky, Mandena, St. Luce (total 6,000 hectares (ha)).

Source: Mining data provided in 2007 by Martin Théberg of QIT. Satellite imagery by *PD-MapLibrary* (copyright 2006).

wetland reeds had varied economic, social and ontological impacts on people living near the mines, often the poorest of the poor and most dependent on natural resources. Section 4 analyses the discourses, market mechanisms and media used to legitimize the company's claims to protect biodiversity.

1. Context of Rio Tinto/QMM ilmenite mine

Rio Tinto, a UK-Australian multinational mining conglomerate, embarked on a billion-dollar mining project in Madagascar's Southeast Anosy region in 2005. Following an exploration phase spanning most of the 1980s, it earned its SEIA (Social and Environmental Impact Assessment) in 2001.³ While North America and Europe are the foremost consumers of ilmenite⁴, growing Chinese demand is creating new markets (Harbinson 2007). Three zones encompassing 6,000 ha of a rare littoral forest and referred to as Mandena (already in operation), Petriky and St. Luce (see Figure 1) will be stripped through a process of dredge mining. The project will last for 60–100 years⁵ and was reportedly negotiated under the former Socialist government of President Didier Ratsiraka, later materializing with (now ousted) President Marc Ravalomanana.⁶

Ilmenite mining takes place through the creation of artificial freshwater lakes and the use of a wet dredge to separate the desired mineral from other trace minerals (Harbinson 2007, 7). Monazite, a radioactive trace mineral, will be returned to the soil after exploitation; a representative of Comité Communal de Développement (CCD) Ampasy mentioned that 7.5 tonnes of monazite/year would be returned to the ground.⁷ At the time of research, many respondents expressed concern over the health impacts of monazite, suggesting that radioactivity might lead to difficulties in pregnancy, increases in miscarriage, impotence, and child illness.

The Rio Tinto/QMM ilmenite project is owned 80 percent by Rio Tinto and 20 percent by the Malagasy government, and the profits reflect this agreement. It is speculated that many national earnings will go towards paying off loan debt (Harbinson 2007). Rio Tinto/QMM purchased land at comparatively low price; territory was bought for USD 1.7 per square metre, markedly less than the average price of land in the Malagasy highlands (with no mineral contact or biodiversity value), at USD 10 per square metre (Parker 2004, 7). In Madagascar all non-privatised land is

³There have been many critiques of the SEIA; see in particular 'A critique, by Friends of the Earth (England, Wales and Northern Ireland), of QMM's Social and Environmental Impact Assessment (SEIA) for the Fort Dauphin titanium project' and Porter *et al.* (2001).

⁴Ilmenite (FeTiO₃) is a mineral found in coastal sand deposits. It is processed into titanium dioxide (TiO₂), a pigment used to make products white, and is found in paints, papers, plastics, toothpaste, and cosmetics.

⁵Estimates vary. Rio Tinto/QMM insist that the mining will take place over 60 years, but local informants insisted on 120 years (source: Representative of CCD Ampasy, personal communication). Rio Tinto is operating on a 100-year lease.

⁶The much-publicized Daewoo (South Korean) land deal spurred massive public protests against Ravalomanana in 2009, leading to a military-led coup d'état which resulted in his expulsion.

⁷Over the past ten years, large-scale mining has grown in Madagascar, partly due to the adoption of the 'Large Mining Investment Act' (see Sarrasin 2006). The gargantuan 'Ambatovy' nickel mine (near Moramanga), led by the Canadian company Sherritt International, is referred to as the world's largest lateritic nickel mine with a USD 4.5 billion-dollar investment alone.

owned officially by the state, though customary and collective entitlements to land preside in most areas. Access to land – rather than individual ownership – is a crucial aspect of rural livelihood security (see Peluso and Ribot 2003).

Within each mining perimeter, Rio Tinto/QMM have set aside protected areas to preserve the incredible biodiversity inherent to the forests. While spatially located within mining sites, the conservation zones total 620 out of 6,000 ha targeted for exploitation, and are referred to as ‘ecotourism’ destinations. The company holds ‘flower shows’ and, with BirdLife International, annual birdwatching events in the Mandena conservation zone (230 of 2000 ha) (Rio Tinto 2010, 24). The conservation zones were recently included in Madagascar’s legal system of protected areas (SAPM) and are now officially owned by the government. Local people are reportedly fined for trespassing and heavily restricted from entering the zones. Rio Tinto/QMM financed extensive scientific research within the protected areas; top biologists were commissioned to contribute to a major Rio Tinto/QMM publication on littoral forest biodiversity (published by Smithsonian, see Figure 2). Informants made little distinction between the exploitation zone and the protected area, referring to the entire forest as ‘zone protégé’ and inaccessible (for example, ‘Mandena’ was used in reference to both). Rio Tinto/QMM pledge to restore 25 percent of the deposit with endemic species, and reforest 75 percent with eucalyptus, a non-native species. The eucalyptus is mediated as compensation to local populations for fuel wood and charcoal.⁸



Figure 2. ‘Biodiversity Book’.

Source: Ganzhorn *et al.* 2007, book cover image acquired from Rio Tinto website (2001–2009a).

⁸Rio Tinto writes, ‘[e]stablished in 2001, the programme goal is to plant 100 ha per year of fast-growing species’ (Rio Tinto website, 2001–2009, ‘Positive impacts of the Programme’ [Accessed 24 March 2012]).

The mine falls into the World Bank's 'Integrated Growth Poles Project' which is designed to 'support private sector-led growth through the provisioning of a conducive legal, physical and business environment in selected regions (called 'growth poles') . . . centred on tourism, mining and industrial parks' (Gankhuyag and Babadjide 2006 6; also see World Bank 2005). Projected benefits are purely economic: 'increased household incomes leading to poverty reduction (Gankhuyag and Babadjide 2006, 6).' The Dow Jones World Sustainability Index hails Rio Tinto as a leader in 'sustainability' within the mining sector. In 2008, Rio Tinto was appointed one of the most 'ethical' companies in the world by the 'Ethisphere Council', a United States-based think tank on global corporate ethics; it was considered that Rio Tinto went above and beyond the legal requirements necessary to reduce its own carbon footprint and impact on the environment.

Within this context, it is crucial to consider that the 'the mining company' is not a monolithic and homogeneous group; internal social and political complexity within mining operations is characterized by a diverse set of actors who often deliberately shield themselves from 'ethnographic scrutiny' (Ballard and Banks 2003, 290). Likewise, stakeholders involved in the project are driven by diverse interests and values, and impacts on 'local'⁹ populations cannot be said to have equal weight or distribution within the Fort Dauphin region – particularly with regard to urban/rural divides.

2. Mediating sustainability: unpacking the Global Mining Initiative (GMI)

The age of mining giants ripping up land, coercively displacing local inhabitants and reaping ecological havoc, is over – at least discursively. In response to growing land access barriers, and within the context of global concerns for biodiversity conservation and poverty alleviation, the CEOs of nine leading multinational mining companies came together in 1999 to forge the Global Mining Initiative (GMI), a campaign revolving around the catchphrase 'sustainable development' (see McNeilly 2000, MMSD 2002). The GMI marked an historic shift in how mining companies began to brand themselves (through media and discourse), access land, legitimize projects, and ensure the continued flow of profits. As Littlewood and Wells (2000) pointed out, during their Melbourne address on the future of large-scale mining:

Many critics see the [extractive] industry as having a declining role in sustainability. . . it has slipped behind. There are measurable consequences of this. It has literally lost ground for exploration or has found that the conditions for entry have become too onerous. . . market access for some minerals has been under pressure (Littlewood and Wells 2000, 1).

Importantly, the GMI was designed not only to render multinational mining projects more 'sustainable', but to position companies on the frontlines of a putative 'global transition to sustainability' – thereby institutionalizing the extractive industry's involvement in major global debates (e.g. biodiversity conservation, poverty alleviation and economic growth) (Rio Tinto 2007c, McNeilly 2000, 7,

⁹Research was mostly limited to the rural localities surrounding the deposit and to a limited extent in Fort Dauphin and Antananarivo, with some members of government and NGO representatives.

BASD 2002). Rio Tinto note that, following the political crisis that hit Madagascar in 2009, the company has become ‘the entire vehicle for sustainable development’ in the Anosy region (Rio Tinto 2010, 10). In short, corporate engagement with sustainability, similar to Corporate Social Responsibility (CSR), is increasingly seen as key to achieving a ‘social license to operate’ and improving regional development (see also Hamann 2010).

These shifts coincided with the ‘mainstreaming of sustainability into the marketplace’ (Adams and Jeanrenaud 2008, 32) and the embedding of biodiversity and forests into global market chains (e.g. debt-for-nature swaps, REDD, REDD+, and biodiversity/carbon offsets) (see Castree 2008, Igoe and Brockington 2007, Büscher 2010, Sullivan 2009, 2010). As nature became an arena for increased profit-making, biodiversity loss was frequently approached by the corporate sector as both a risk and an opportunity (TEEB 2010, Elmqvist *et al.* 2010). While conservation and mining might seem to exist at opposite ends of the spectrum, both involve the common goal of land access and control; as David Richards, Chairman of Rio Tinto, stated in 2007, ‘[s]eeking access to land puts mining in the same “market” as other land uses, including conservation’ (Richards 2007). The increasing role of the corporate sector in compensatory finance mechanisms such as Payments for Environmental Services (PES) and offsetting schemes may have caused various conservation NGOs to ‘partner’ with multinational mining companies to negotiate the ‘swapping’ of biodiversity, capital (both financial and discursive) and land (see Olsen *et al.* 2011). For example, Shell, a leading oil company, formed a corporate partnership with the Smithsonian Institute, a scientific research institution; Smithsonian assisted Shell in locating a natural gas plant and pipeline in Peru, and Shell financed a biodiversity conservation project in Gabon in return (ABCG 2004, 6).

International conservation NGOs have maintained a high level of political influence in Madagascar over the past 20 years (Duffy 2006, Horning 2006), recently culminating in what Corson (2011) terms a process of ‘internal territorialisation’ – wherein non-state actors, facilitated by the state, succeed in enclosing public lands for conservation. She notes that despite the 2009 political crisis in Madagascar, non-state actors enclosed 9.4 million ha of protected areas by 2010 (2011, 704). Many of these environmental NGOs have formed corporate partnerships with Rio Tinto, such as Conservation International (CI), Flora and Fauna International (FFI), Kew Botanical Gardens, BirdLife International, WWF Australia, Earthwatch Institute, and the IUCN (International Union for Conservation of Nature). Local respondents mentioned that while some CI and WWF representatives in the Fort Dauphin region had been strongly critical of the mine in its early stages, both NGOs (as of the time of fieldwork) had purportedly changed their tone significantly. Locally, a WWF official appeared supportive of the mine following an interview in Fort Dauphin. While it is impossible to generalize the views or interests of partner conservation NGOs given the internal diversity of each group, two trends appear clear: some companies and NGOs share the same media and rhetoric (for example, the oft-repeated slogan of the ‘global transition to sustainable development’ appears on the websites of BirdLife International (2012a), IUCN (2010) and Rio Tinto (2012) and many discourses of degradation follow the same narrative line (discussed below).

With the IUCN recently including the private sector as one of three ‘pillars’ in the growing ‘sustainability industry’ (Adams and Jeanrenaud 2008, 30–33), reports

emerging from various think tanks stemming from the Global Mining Initiative, such as TEEB (The Economics of Ecosystems and Biodiversity), MMSD (Mining, Minerals and Sustainable Development), BBOP (Business and Biodiversity Offset Programme), and WBCSD (World Business Council on Sustainable Development), suggest that corporate actors – particularly mining companies – play a crucial role in both sustainability and biodiversity conservation.

Mining-conservation partnerships must be seen within the context of Madagascar's status as a richly biodiverse (Dewar and Wright 1993) yet economically impoverished country (World Bank 2009), with two thirds of the Malagasy population living below the poverty line in rural areas (Sarrasin 2006, 389). Following various neoliberal reforms in the 1990s, development projects in Madagascar have two main goals: to alleviate poverty through economic development and to protect and sustainably manage the environment (Sarrasin 2006). As its largest financial lender, the World Bank has encouraged Madagascar to accept Foreign Direct Investment (FDI) as a primary means in which to promote economic growth and relieve debt (Sarrasin 2009). A new 1999 mining policy (Law No. 99-022), which aimed to enlarge the mining industry's role in economic growth whilst 'withdrawing state involvement in operations,' increased the degree to which the corporate sector could intervene in regional development (Sarrasin 2006, 391–392). Such trends echo two decades of mining law reforms in Africa that have resulted in a redefinition and often weakened role of host States in local and regional governance (Campbell 2009). Also consistent with broader 'land grabbing' debates suggesting that foreign investments could contribute to economic growth, environmental protection and poverty alleviation (see World Bank 2010), 'win-win' scenarios have been the subject of critique by various scholars of foreign large-scale land acquisitions (White 2010, De Schutter 2009, 2011, Cotula *et al.* 2009, Borras *et al.* 2011, Anseeuw *et al.* 2012, Hall 2011).

2.1. Research setting and methods

Field research¹⁰ was carried out in 2009 primarily in the rural district of Ampasy Nahampohana (pop. 7,200), Southeast Madagascar, about 10–12 kilometres (km) from Fort Dauphin (Tolagnaro) (see Figure 1) and neighbouring the Mandena ilmenite deposit (2,000 ha). Interviews were also held in the *fokontany* (sub-districts) of Ambinanibe (pop. 3,000) and Ilafitsinanana, (pop. 1,500), located in the vicinity of a major port built by Rio Tinto/QMM called Ehoala and designed to ship minerals to a processing plant in Sorel-Tracey, Québec (Canada) (population figures taken from ALT/Panos 2009). Ampasy Nahampohana has a population density of 79 persons per km² and total surface area of 91 km² (SIRSA 2005, 1). The area consists of farmers who primarily cultivate rice (*vary*), manioc (*belahazo*) or sweet potatoes (*bageta*) for (semi-) subsistence. Occasionally farmers sell a portion of the year's harvest to pay for school fees, clothes, petrol, sugar, or beef. A smaller portion of the population works in the forest as *bûcherons* (woodcutters) or charcoal producers; however many of these individuals work on private concessions and harvest from monocultures rather than public land. Charcoal is sold in Fort

¹⁰This paper is based on master's research conducted in 2009 (January–March).

Dauphin and most villagers use dry wood or shrubs collected from the forest floor for fuel.

Interviews were also carried out in the commune of Amparihy, where many villagers rely on fishing for their livelihoods. Here Rio Tinto/QMM's construction of a dam (*seuil déversoir*) to supply freshwater for mining led to the collapse of an estuarine ecosystem, eliminating the supply of fish (discussed below). Residents of Amparihy staged protests against Rio Tinto/QMM in January 2009, blockading the road leading to the Mandena processing plant. Primary grievances related to the loss of fishing grounds and the flooding of farmers' *rizières* (rice fields) due to the dam (L'Express Madagascar 2009). Rio Tinto/QMM referred to the protests as 'illegal' and threatened to take those participating to court (L'Express Madagascar 2009).

3. Land use, ownership and tenure in Madagascar

Claims to land in Madagascar are often mediated through long-term (15 or more years) shifting cultivation called *tavy* (frequently referred to as 'slash and burn'), or the presence of ancestral tombs. *Tavy* is a practice wherein small (1.2-ha) plots of land are burned of their vegetation, and staple crops (notably rice and manioc) are planted in the nutrient-rich ash; after a number of years of use, land is left fallow to regenerate. Very few people have official title to the land they use; it is estimated that, of '90 percent of Malagasy farmers who own land, only 8 percent have formal land titles' (ALT/Panos 2009, 8). Within this context, the notion of 'ownership' is problematic as land, and forest and water resources, are often communally accessed. The centrality of tombs and the ancestors in Malagasy customs indeed means that land is 'owned' by the ancestors themselves (see Evers 2006), and territory is often referred to as the *tanindrazana* – 'land of the ancestors'.

Malagasy people etching out a living from *tavy* are often viewed as the main destructors of forests and biodiversity in global conservationist and state discourses of degradation (Gezon 1997, 463, Jarosz 1993, Kull 2000). Many scholars have shown how degradation narratives are embedded in ideological biases associating Malagasy people with 'irrational' or 'inefficient' resource use, a myth tracing back to the colonial period (Kaufmann 2000, Kull 2000, Simsik 2002, Klein 2004). Political ecologists have long pointed out that many local populations are often wrongly criticized for a perceived lack of productivity and wrong use of the environment, misconceptions which have long shaped global perceptions of landscape degradation (see Conklin 1954, Blaikie 1985, Fairhead and Leach 1996) though irrespective of complex factors leading to forest loss (Lambin *et al.* 2001, Angelsen and Kaimowitz 1999, Kull 2000). The history of colonial pressures on forests, particularly in Madagascar – where mass forestry carried out by French colonialists led to a net loss of forests – is often abstracted from current assessments of deforestation (Jarosz 1993, Sodikoff 2005). During colonialism, 'conservation' zones were found lying adjacent to massive hardwood logging projects initiated by the French, which Sodikoff (2005, 2007) suggests sent contradictory messages to Malagasy people, who faced numerous bans on *tavy*.

In Madagascar, land cannot be viewed as a solely economic asset; it is also an existential anchor to past, present and future generations. Connecting to the ancestors (*drazana*), upholding customary knowledge (*fomba*) and carrying out labour activities are all tied to everyday land use practices. As one woman stated during fieldwork:

Land is inheritance; it is the '*donneur de vie*' (giver of life). The question is: what will they *do* afterwards, when their land is gone? Cultivating the land is their heritage, it is a symbol of family value. The ancestral ties between parents and children are not just economic (Madame Angeline, personal communication, 2009, translated from French by author).

The above quotation points to the value of land as (local) heritage in Madagascar and crucial to securing family ties, notions of wealth and inheritance, and everyday subsistence activities (Evers and Seagle, forthcoming). Descendants give value to land through long-term cultivation and pass it on to future generations as inheritance (a process through which these descendants become ancestors themselves). This process is crucial to Malagasy ontologies of growth, kinship, memory, death, and burials – which are all intricately connected to land use, landscapes and providing sustainability to future generations (Evers 2006, Keller 2008, Bloch 1995). The next two sections will show how an inherent tension exists between the company's remediation to local communities (Section 3.1) and compensation to global audiences (Section 3.2).

3.1. Offsetting local impacts: 'integrated compensation' or 'gifts' of sustainable development?¹¹

The following sections relate empirical data to critically discuss the impacts of the mining project on land-reliant stakeholders. I analyze Rio Tinto/QMM's 'integrated compensation programme', which is aimed at 'improving' and training local populations through 'community projects'. Referring specifically to the Rio Tinto Richards Bay Minerals mine in South Africa, Kapelus (2002, 280) notes that if 'companies can convincingly make the claim that the local community is benefiting from their operations (e.g. through community development programs), then it provides them with a cloak of legitimacy'. It is argued that the company's remediation scheme is problematic in two ways: first, it does not adequately compensate for the value of land and biodiversity lost, and second, it is embedded in global commitments to 'sustainable development' rather than addressing real, material impacts of mining on local residents. The compensation programme includes:

- ecotourism;
- improved agricultural productivity;
- improved fishing practices;
- plantations;
- restoration;
- conservation area management (QMM 2007).

Rio Tinto's paradoxical strategy of enforcing conservation on individuals coping with the social and environmental impacts of the mine has led to a process of inversion, wherein local people are mediated as the primary agents of environmental degradation and livelihood shifts branded as necessary to sustainable development.

¹¹Names of villages and informants are fictitious in order to protect anonymity.

3.1.1. Land access and food security in Ampasy Nahampohana

As H.J., a former chef *fokontany*, said, ‘in the town, there are more options to change work; in the rural areas, land is everything! So if land is taken away, all social and family life is disrupted’. The loss of access to Mandena (2000 ha), rise in the price of land and related inflation,¹² and growing number of private land enclosures (concessions) in Ampasy Nahampohana has led to substantially less space available to cultivate crops and graze cattle (*zebu*). Farmers increasingly migrate into the mountains to cultivate manioc – one of the few crops suited to the rugged terrain. Since the onset of mining, respondents noted an increase in the price of land, and many owners were selling their territory to foreigners (*vahaza*) or extra-locals (*piavy*). This was perceived to be a land access problem, as farmers who often freely cultivated on the land of local owners (facilitated through social ties and the *fhavanana* (social bonds) were excluded from land bought as concessions by extra-locals. Also, under Malagasy law, a *vazaha* can legally buy land if he marries a Malagasy woman; this occurred in one instance where a white foreigner purported to work with Rio Tinto/QMM acquired several hectares of land to grow cash crops (as opposed to staple crops). Farmers mentioned that the Ministry of Water and Forests (MEF) often threatened to fine villagers for deforesting in the mountains; many insisted they were well aware of the impacts of hilltop deforestation on waterways, but that the MEF offered no alternatives. Farmers perpetually pointed to the lack of rain and ‘*chauffage de climat* (climate change)’. One farmer suggested that Rio Tinto ‘*retient la pluie... la pluie est mauvaise pour le travail a cause de QMM* (QMM blocks the rain; the rain is bad because of QMM)’.

While cultivating staple crops seemed to be a priority for the people of Ampasy Nahampohana, Rio Tinto/QMM aimed to increase farmers’ profitability by hiring a multinational outsourcing company, Sodexo, to help implement a gardening project. The premise was that, by turning locals into gardeners and diversifying their production (for local or regional markets), dependency on natural resources and *tavy* would decrease. Committed to contributing ‘a better diet for local communities’ (Sodexo Madagascar 2007, 12), Sodexo engages in educating locals about the importance of ‘food diversification’ through the introduction of garden vegetables (carrots and tomatoes) (Sodexo Madagascar 2007, 24). This initiative is consistent within Corporate Social Responsibility (CSR) discourse stating that

changing unsustainable patterns of consumption is widely seen as an important driver to achieving sustainable development. Companies have a key role to play in facilitating sustainable consumption patterns and lifestyles through the goods and services they provide and the way they provide them (Gochhait and Gochhait 2010, 8–9).

Sodexo’s work in the Fort Dauphin region is aimed primarily at integrating local farmers into the market, and thus can be considered a form of inclusion; however, this is also based on the assumption that farmers would not need to clear land for *tavy* if they did produce vegetables (and earned a profit), and thus points to exclusion from subsistence activities. These inclusion/exclusion dynamics are similar to what Hall describes as a process of ‘adverse incorporation – rather than exclusion – of smallholder agriculture into new value chains’ and ‘patterns of accumulation’

¹²Informants noted that the price of a bushel of bananas and a *zebu* (cow) had doubled between 2000 and 2009, and that the price of rice and beef had risen by a third; they mentioned that such inflation was not normal for the region.

(2011, 207–208). The integration of local people into markets and dissuading of subsistence activities heavily influences Rio Tinto's approach to sustainable development; as Vincelette *et al.* state in a Rio Tinto publication, 'these are rural people engaged in subsistence production, which provides limited opportunities for development or economic growth' (2007, 4). While the impacts of the mine create hardships in terms of cultivating staple crops, Rio Tinto/QMM's promotion of 'sustainable development' – which points to 'improving' agricultural productivity and integrating farmers into the market, fails to specifically address this impact itself.

An interview with a representative of Care International revealed the problems associated with Sodexo's strategy to turn subsistence farmers into market producers:

The main problem is that farmers cannot just plant carrots and tomatoes; they eat what they produce, so it must coincide with cultivation of manioc or rice. They are not used to eating these new vegetables (carrots, tomatoes and potatoes)... If the vegetables are not bought on the market, or if they rot, they lose money, food *and* labour time, so there are many risks involved (Care International Official, personal communication, March 2009, translated from French by author).

Moreover, profit earning did not necessarily appear to be a goal in the area; a former chef *fokontany* mentioned that farmers only sell a portion of their production, and only if it is absolutely necessary. Similarly, Scott (1976) argues that, within the 'moral economy of the peasant', many people consciously choose *not* to risk maximizing profits as starvation is an everyday concern: maintaining food security often takes priority. Within the context of very low agricultural productivity (wherein many families eat manioc instead of rice), decreased access to land, and heightened risk of food insecurity, farmers did not have plans to expand, nor did they have the luxury to experiment: they were thinking about minimizing imminent risks. As one farmer told us in Ambaniala, '*Il faut mourir demain et pas aujourd'hui*' (it is better to die tomorrow rather than today)'.¹³

3.1.2. Relocation, 'gifts', compensation and the unequal value of natural resources

J.P., a man in his late thirties with family ties to Ampasy Nahampohana, stated: 'QMM gave money to people, and now they are poor.' Another respondent, a middle-aged Malagasy man working for a prominent NGO, said:

QMM only gives gifts – they don't teach people how to improve their living situation... For the farmer, if he receives 50,000 Ariary¹³ from QMM, what will he do with it? He doesn't have land! Some people buy telephones, credit, and cars – even if they don't have a licence (NGO Official, personal communication, 2009, translated from French by author).

Within the context of rural poverty, where many people (necessarily) live in the day-to-day, local investments in land nevertheless appear heavily geared towards sustaining future generations and growth (see Keller 2008). In this sense, land could be construed as an important form of capital, necessary for everyday survival activities. This iteration of the 'gift' appeared more literally in local situations and in

¹³50,000 Ariary = about USD 23 (as of 22 January 2012).

relation to money, schools and hospitals offered by the mining company,¹⁴ though Rio Tinto/QMM's promotion of sustainable development in an economically poor region could be interpreted as a global 'gift' as well.

In Befasoka, located near a new port (Ehoala) built by the company to ship minerals, it was found that Rio Tinto/QMM asked villagers to stop fishing for three years in order to replenish existing stocks in the coastal inlet, purportedly as a conservation measure. Rio Tinto/QMM offered the village monetary compensation for the losses that would occur; however, an elderly man and his wife explained that the village refused the money - choosing instead to continue fishing. For them fishing ensured both food security and income for future generations. It also provided labour activities for the entire family; while young boys learn to fish and weave nets with their fathers, young girls accompany mothers to sell fish at the town market. However, Rio Tinto/QMM continued to encourage the village to accept the money, leaving locals wondering what choice they had to oppose the policy, and whether the 'gift' of compensation was being forced on them.

When I asked the older man and his wife what they would *do* if unable to fish for three years, a heavy, awkward silence filled the room; the man half-smiled and looked vacantly to the floor. His wife vehemently replied, 'Nothing! What will we do if we are unable to fish?' Her husband nodded in agreement. She continued, 'Maybe we will sell things, like coffee or *mofo* (bread) on the street; that is what some people are doing now'. These examples suggest that monetary compensation may not replace the value of labour and food to some people living in the village.

ALT/Panos (2009) mention that port construction had many adverse impacts on the people of Befasoka, including land dispossession and lost access to fishing grounds. The Ehoala peninsula is comprised of two important fishing sites used seasonally, Somatרהa and Bevava. The company heavily restricted access to Somatרהa, which is described as the most important fishing grounds to locals.¹⁵ While lost access appears directly related to the conversion of Ehoala to a major international port, Rio Tinto/QMM note, prior to building the port, that a 'project is in progress to improve the management of fishery resources' in Befasoka (Bannister 2006. As of 2007, Rio Tinto/QMM (2007b, 21) had introduced a 'fish weighing station' in the village so as to 'improve fish production and management' (though it is unclear how the station was used or enforced). The focus on improving fishing methods trumps the company's own assertion, in a footnote to their 2007 sustainable development report, that fishermen of port Ehoala 'had to temporarily suspend their fishing activities' (Rio Tinto/QMM 2007b, 16). Here we can observe a real mining impact – port construction – being abstracted, inverted and remediated as a development project aimed at 'sustainable' fishing.

The focus on 'training' and sustainable fishing is premised in part through Rio Tinto/QMM's discourses of degradation, which maintain that, prior to the mine, 'the principal lakes have become silted and polluted, no longer capable of serving the

¹⁴Rio Tinto/QMM built schools and health clinics in several of the *fokontany* surrounding the deposits. This was widely approached during the field period as a positive outcome of the project, particularly schools. However, ALT/Panos (2009, 20) note that some villagers found it difficult to pay for medicine when access to medicinal plants in the littoral forests had been cut off, and that many schools do not have enough teachers.

¹⁵See Panos London: Illuminating Voices website, 'Rosette: story of change.' Rosette says, 'somatרהa was to fishermen what rice paddies are to farmers, and it sustained their lives. . . Losing access to Somatרהa was a terrible thing'.

population either as sources of potable water, nor as a source of revenue from fishing' (QMM 2007, 5). In a Rio Tinto publication it is mentioned that local people were 'overfishing' anyway (Vincelette *et al.* 2007, 5), thus suggesting that prior to Rio Tinto/QMM's arrival, local people were unable to manage natural resources independently or sustainably.

In the village of Afafianala, many informants pointed to a drop in food security due to Rio Tinto/QMM's construction of a dam which changed a brackish estuary to freshwater and led to the collapse of a formerly highly productive fishery. The dam was built at the mouth of a river leading from Lake Ambavarano to the coast, and designed to supply fresh water for dredge mining. Ilmenite mining requires enormous quantities of fresh water, about 72,000 cubic metres (m)¹⁶ per day (Réville *et al.* 2007, 281). During weir development, and in response to fishermen's early complaints about a change in the fish catch, Rio Tinto (2007c, 15) insisted that 'the weir had not had a negative impact' and that 'over-exploitation of fish resources was proven to be the main cause of the reduced catch' following a three-week study by the company.

In Afafianala, we spoke with an older fisherman and his wife who were supporting a family of ten. The man explained how nearly all of the fish disappeared following the construction of the dam, and that villagers were struggling to survive. Fishing provided food for subsistence, an additional income and labour activities. While the man insisted that fishermen could previously make 100,000 Ariary per day (a great deal more than the incomes of cultivators), Rio Tinto/QMM purportedly offered 130,000 Ariary per *month* in compensation, to be distributed every other six months.¹⁷

Here, the people are poor and just accepted the 130,000 immediately. Before, we could fish three *vaha*¹⁸ per day; now, we are lucky to catch three fish per day due to the *seuil déversoir*. Fish from the sea used to come in here, but are now stopped by the *barrage* (dam). . . *Fia tsy misy* (no more fish)! [. . .] Here the land is not cultivable, we can only exploit the water. Now people eat the river plant, *Via* [points to bowl of food with *via* mixed with manioc]. Because there are no more fish, we don't know what will happen in the future – perhaps we will move elsewhere (Man in Afafianala, personal communication, March 2009).

While fish appeared to be lacking in the estuary altogether, Rio Tinto/QMM introduced conservation measures to combat 'overfishing'. As of 2007/2008, the company had enforced 'compliance with the code of sustainable fishing' on fishermen affected by the dam (Rio Tinto 2007a, 24). At the time of research, villagers were forced to use 'sustainable' nets provided by the company, referred to as *harato telo tondro* (nets with 'three fingers') – nets with larger holes, thus eliminating the possibility of juvenile by-catch. Villagers caught using local nets (with smaller holes) risked being fined. Respondents expressed dismay over this requirement as large fish were virtually absent from the waters due to the dam. The small fish still present would simply swim through the holes of the new nets.¹⁹

¹⁶The equivalent of about 28.8 Olympic-sized swimming pools per day.

¹⁷Compensation was said to follow an agreement wherein payment was received every month for six months and followed by a six month period of no payment.

¹⁸*Vaha* are baskets woven out of *mahampy*.

¹⁹Small fish were purportedly able to get through the dam by means of a 'key' in the weir.

Taken in dialogue with the integrated compensation programme, here we see another process of inversion, where a mining impact (dam leading to ecosystem shift) was re-mediated as ‘sustainable development’ (‘improved fishing methods’). This is further evidenced in the simultaneous enforcement of conservation on people coping with the rapid environmental changes arising from the mine itself.

While fishermen were well acquainted with selling fish at the market prior to the dam and port (a primary activity of women), Rio Tinto/QMM imply that villagers were introduced to the concept of markets, writing that ‘[t]raining was undertaken... on improving fishing techniques. *For the first time the fishermen were assisted in marketing their catch.* This is an ongoing project in an attempt to move them from subsistence fishing to a commercial catch.’ Rio Tinto/QMM (2008c, 18, emphasis added). This quotation again reproduces the notion that, prior to Rio Tinto/QMM’s arrival, local Malagasy people were helpless, living in the past and isolated from or unaware of markets. This echoes James Ferguson’s (1994) critique of the development apparatus, which points out that one key misconception of development is the false assumption that local populations live in market isolation.

In another case, a mountain was acquired by Rio Tinto/QM to construct a rock quarry. The mountain, which is considered the ancestral land of the people of Ravitany, was blown up with dynamite (see Figure 3) to supply stones to a breakwater for Port Ehoala. Up to 500 people were displaced from their homes and hundreds more lost access to land used for cultivation (number quoted from ALT/Panos 2009). World Bank guidelines for ‘Involuntary Resettlement’ stipulate that PAPs (Permanently Affected Persons) must be moved to a location at least ‘as good as’ if not better than before. The people in the village considered the mountain to be the ‘land of the twelve ancestors’ and insisted that Rio Tinto/QMM had destroyed sacred stones called *anorombato*. One woman remarked, ‘The money given to us was not the same value as the land that was taken from us. *Tsy mitovy!* [not the same!]’



Figure 3. Resettlement houses for families displaced by the rock quarry (photo taken in Ravitany by author March 2009).

She noted that replacement land lacked the quality of the land taken, as it was infertile and sandy, insisting ‘it is not cultivable!’ Some were displeased with the resettlement houses which, bright blue and pink in colour, purportedly leaked during storms and had cracks in the ground. At the time of research, the village had been waiting for compensation from Rio Tinto/QMM for three years. They were also negotiating the amount of compensation which villagers said failed drastically, with the company offering first 13 million Ariary as compensation, then 10 million and finally only four million per family (USD 1,900).

While ‘gift giving (*donner les cadeaux*)’ has been a primary means in which Rio Tinto/QMM has negotiated immediate compensation, ‘gifts’ of money may be valued differently by different actors. By focusing on the (true) assumption that many Malagasy people are economically poor, compensation may be transformed into a ‘development gift’; however, financial capital may not equal other forms of capital (land, water, forests, social bonds) valued by many people as wealth, as described above. These complex realities render the very notion of monetary compensation problematic.

Rio Tinto/QMM notes that compensation and protected area management were negotiated with local populations through the use of a *dina*, a customary Malagasy social contract used in rural settings. Nevertheless, respondents affected by the dam, relocation, removal of tombs, and loss of *mahampy* all iterated that they were still awaiting ‘real’ compensation (see Seagle 2009). With regard to land dispossessed, some estimates suggest that 100–400 MGA (Malagasy Ariary) per m² (400 MGA = USD 0.17)²⁰ was paid out to land holders (ALT/Panos 2009, 10). This is lower than World Bank regulations stipulating the payment of at least 2,000 MGA per m² (ALT/Panos 2009, 14). Women who had lost access to reeds used for weaving (*mahampy*, discussed below) mentioned that compensation had been dealt with by local authorities and they had been excluded from the process. Often the poorest of the poor – particularly farmers who work in the fields during the day – are excluded from decision-making processes, including the *dina*, and Marcus (2008, 104) notes that just ‘40 percent’ of Antanosy people ‘participate in any type of informal or formal organisation, including *dina*’ (in ALT date n/a, 5).

4. ‘Handicrafts training’ with *mahampy*

As described in the case of fishing, some compensatory language employed by Rio Tinto/QMM surrounds the ‘training’ and education of activities local people have been doing for centuries – but can no longer carry out due to the environmental impacts of the mine. As part of their compensation package, Rio Tinto/QMM mention that women will be trained how to make ‘baskets and mats produced by weaving *mahampy* (Rio Tinto 2007a, 2).’ In Ampasy Nahampohana, and along much of the littoral coastline, weaving *mahampy* (a reed that grows in the littoral forest) is a practice passed down by the ancestors, and is the primary activity of women. Informants insisted vast reserves of *mahampy* in Mandena had been destroyed by Rio Tinto/QMM or made inaccessible.²¹ The decimation of *mahampy* in Mandena was an act referred to by one man as ‘le sabotage de QMM’. In reference to a patch of forest

²⁰2012-01-06 14:49 UTC, taken from ALT/Panos 2009.

²¹Information collected during focus group interview with women in Ampasy Nahampohana, February 2009.

in Mandena planted with *kininy bonaky* (Niaouli, or *Melaleuca viridiflora*, an invasive species that conflicts with the growth of *mahampy*²²), he said, “They [QMM] dropped *kininy bonaky* in silence, and told the people that when the *kininy bonaky* was big, no more *mahampy*!” One woman added, “We showed them how we used the forest, we showed them we have a dependence on it, and they [QMM] cut it down!”

Weaving *mahampy* is deeply embedded within Antanosy customs – having secured the provision of income in times of food scarcity, when the production of rice or manioc is low. ‘Ampy’ means ‘complete’ and is a symbol of solidarity and togetherness. Ingold (2000) suggests that the ‘life-activity’ of weaving also involves a wider process by which the ‘world’ is ‘made’ (pp. 338–339); through the embodied activity (labour) of weaving, the end product (a mat or basket) is imbued with social significance. The metaphor the ‘mat’ appears in some Malagasy proverbs; for example, ‘*tshibelambana ny olona*,’ which literally means, ‘people constitute a great, broad mat,’ refers to the interconnectedness of all humanity, both people living in the present as well as in the past (ancestors) (Fox 1990, 24). Several informants emphasized the fact that *mahampy* is the *only* species used by the Antanosy to wrap deceased ancestors before they are placed in a tomb. Through this process, the temporal connection (dialectic) between ancestors and descendants is established.

While Rio Tinto/QMM was experimenting with *mahampy* plantations and basketry training during research, some women refused to use the plantations as the reeds did not come from the *zanahary* (the Creator) or were of poor quality, and as a result many now purchase *mahampy* from middlemen who collect it from outside the region (Antonie Kraemer, SOAS, personal communication). This case study underlines the odd tension between Rio Tinto/QMM’s decimation of *mahampy* on the one hand, and focus on local ‘training’ in weaving on the other.

4.1. Offsetting the ‘global body’: mimesis and alterity

While the previous section discussed some local impacts in relation to Rio Tinto/QMM’s ‘integrated compensation programme’, the following section details the company’s approach to compensate *globally* for the environmental impacts of the project. This is also described as a process of inversion, wherein (a) Rio Tinto/QMM imply they are ‘saving’ rather than creating scarcity of biodiversity, and (b) the process of creating scarcity itself (paradoxically) lends legitimacy and value to the company’s preservation of biodiversity.

While discourses and media used by Rio Tinto/QMM highlight the unique biodiversity found within the littoral forest and mining sites (see Figure 2), they also elaborate upon a crisis narrative of imminent degradation and reflect clear neo-Malthusian influences:

High population growth rates and overwhelming poverty have contributed to serious environmental degradation in the region. Of 11 watersheds identified, seven are highly degraded thanks to slash and burn agricultural practices... The physical, social and administrative infrastructure of the town of Fort Dauphin, on which a population of 50,000 depend, is equally if not more seriously degraded... Both public and private investment is required to achieve the economic growth necessary to reverse this situation (QMM 2007, 5).

²²Niaouli is a member of the Myrtaceae family, to which eucalyptus belongs, and is a thin, stunted tree with white papery bark. *Kininy* was used locally in reference to eucalyptus.

Comparing the degradation of the environment with that of the town itself, Rio Tinto/QMM imply that their presence is urgently needed. Degradation narratives and discourses (see Adger *et al.* 2001 and Kull 2000) also contain assumptions concerning ‘right’ and ‘wrong’ natural resource use (see Luke 1997 and Adger *et al.* 2001). As Manon Vincelette²³ stated in 2009, ‘We are proud that QMM has been recognized as...building capacity for better use of the natural resources in Madagascar’ (in Prinsloo 2009, see also Rio Tinto 2007b, 8).²⁴ While some uses of the forest are warranted (mining, protected areas), other activities (tree felling, subsistence agriculture, use of non-timber forest products) are mediated as the ‘wrong use’ of the environment – and alteritous. As the company states in their 2009 dossier, *A mine at the rescue of the unique biodiversity of the Littoral Zone of Fort Dauphin* (QMM 2009):

Since the arrival in Madagascar about twenty years ago, Rio Tinto QMM was immediately conscient of the existence of the forets’ [sic] deterioration in the littoral zone of Fort-Dauphin due to the irrational pressure exercised by the local population who is very dependent on natural resources (QMM 2009, 2).

By focusing on ‘rational’ resource use, sustainability discourses presuppose that customary approaches to environmental management are ‘irrational’, despite having secured the provision of food, medicine, income, and livelihood activities for centuries (see Luke 1995).

In terms of media, Rio Tinto/QMM have been quick to mirror the example of some conservation NGOs; for example, the websites of both WWF and Rio Tinto/QMM are nearly indistinguishable, both boasting close-up photographs of healthy green saplings sprouting from rich soil (see Figure 1).

Adorno saw mimesis as extending beyond an objective copy and including sensuousness and feeling (in Taussig 1993), thus in terms of legitimacy and the production of complicity, it is important to consider how media addresses the senses and perceptions of the environment.

5. Contested degradation: Mandena forest and biodiversity uses

Prior to Rio Tinto/QMM’s acquisition, Mandena was used extensively by villagers for cultivation, accessing wood (for the house), food and medicinal plants, and grazing cattle. The forest also housed the ancestral tombs of a migrant group, the Antesaka, who have been living in the area for generations. These tombs were reportedly displaced by Rio Tinto/QMM – an act that is considered a serious *fady* (taboo) in most Malagasy customs (*fomba*). Twenty-five families were affected by the removal of the tombs, and Rio Tinto/QMM purportedly paid 30 *zebu*, two sacks of rice and twenty bottles of *tokagasy* (Malagasy rum) to each household.

Hundreds of medicinal plants are found in the littoral forest and widely used; many people encountered in the field had a remarkable awareness of medicinal plants. Food, such as *via* (an estuarine plant eaten in times of scarcity), guavas (in season during fieldwork, and often gathered by children), fruit trees (papaya, bananas, pineapples, *coeur de boeuf*), and *boreko* are found in the forest. At least

²³Vincelette is a former forest engineer for Conservation International and head of the Rio Tinto/QMM biodiversity programme.

²⁴Conservation International (2011) launched a biodiversity initiative in Brazil with Walmart focusing on the ‘sustainable use’ of natural resources.



Figure 4. ‘Mimicking Conservation’ frame captures of WWF and Rio Tinto/QMM Madagascar webpages from 21 August 2009.
 Note: Frame captures were acquired in 2009 and have since changed.

eight species were found to be used in the construction of one Malagasy house, such as *raty* (traveler’s palm) which is used in the making of the roof. The Malagasy house itself could be seen as a chronotope of biodiversity, as each species used in its construction has a certain quality: such as the width, strength or length of wood. Some plants are used for building traps for fish or lobsters, while others are used for bedding. It was found that some cultivators grew rice on the outskirts of Mandena; one patch that had been cleared for *tavy* a few years prior had been abandoned as it was considered to be too close to the protected area.

Nevertheless, Rio Tinto/QMM perpetually refer to ‘charcoal burning’ and *tavy* as the main use of Mandena, regardless of the reality that residents of Ampasy Nahampohana are primarily (semi-) subsistence farmers. Referring to the Mandena protected area, which is situated within the mining perimeter, Rio Tinto/QMM write, ‘In an area surrounded by deforestation for charcoal burning, the conservation zone will provide a buffer zone for the preservation of animal and plant species. They [conservation zones] are also a tourist attraction’ (Rio Tinto/QMM 2009, 10). The fallacy implied is that the conservation zones will provide a ‘buffer’ from charcoal burning rather than dredge mining. Similarly, Vincelette exclaimed, ‘We are now saving forest that would otherwise go through slash and burn’ (Frenkiel 2005). The discourse points again to a process of inversion, where actual mining impacts (deforestation) are abstracted from the narrative line and re-mediated as a seemingly endemic – and speculative – ‘local’ problem.

In contrast, Virah-Sawmy (2009) has demonstrated that Rio Tinto/QMM’s discourse linking local people to littoral forest degradation is based on false presumptions about how the forest has changed over time. She draws upon paleoecological evidence to show that uneven littoral forest distribution is a cause of complex climatic shifts as opposed to a history of human impacts. Ingram *et al.* (2005, 781) refer to records by Day (1950) and more recent work by de Gouvenain and Silander (2003) to note that ‘shallow root systems, sandy soils, and extreme winds make the littoral forests exceptionally vulnerable to uprooting because of cyclonic activity’. Similarly, in a study focusing on the extent of ecosystem damage on Madagascar’s east coast due to cyclones, Birkinshaw and Randrianjanahary (2007, 18) note that the ‘most severely damaged’ was the littoral forest. Virah-Sawmy (2009) goes on to show that most deforestation was carried out over the past 20 years during the exploration and infrastructural periods by the Rio Tinto mine itself. Thus Rio Tinto’s calculations of ‘near-total forest loss on its mining sites in the absence of mining activities’ are potentially unreliable (Virah-Sawmy and Ebeling 2010, 1).

While Vincelette *et al.* (2007, 5) suggest that Mandena was almost empty prior to the mine: ‘[t]he 2000 ha of the Mandena are now 75 percent open lands, 10 percent highly degraded forest, and 15 percent wetlands,’ Ingram *et al.* (2005, 781) mention that the way in which remaining remnants were identified by Rio Tinto/QMM with GIS maps (see Vincelette *et al.* 2007, 49) ‘failed to capture the full range of structural heterogeneity’ of the forests; the ‘semi-qualitative’ way in which Rio Tinto/QMM classified the forests ‘cannot be replicated because of biases associated with observer’s judgements’ and the company’s tendency to measure littoral forests according to canopy cover alone (Ingram *et al.* 2005, 781).

The company promotes eucalyptus reforestation²⁵ in their integrated compensation programme and notes that plantations will satisfy local needs for ‘wood and other forest products’ (Ganzhorn *et al.* 2007, 323). However it is unclear how medicinal plants and other forest products would be provided in a post-mining scenario with monocultures. One informant stated, ‘before, people didn’t use *kininy* (eucalyptus) – now they have to. It is not as strong as the trees in the mountains’. Harbinson, quoting an informant in the region, adds, ‘the eucalyptus tree rots; it’s not durable compared to the local trees species like *harajado*’ (2007, 48). Used as a colonial plantation species, eucalyptus has been linked to forced labour regimes and is highly water-intensive and flammable (Harbinson 2007, 48). In Thailand, a

²⁵The company pledges to grow 100 ha of eucalyptus per year for local consumption.

state-run eucalyptus campaign reportedly caused decreased water resources, lowered soil fertility, increased soil salinity, and drought, mobilizing Thai peasants to protest against the government as eucalyptus was equated with livelihood loss (Kittisiri 1996). In Brazil, women indicated that eucalyptus plantations led to the loss of subsistence activities and medicinal plants; in 2006 women joined together to protest by destroying thousands of eucalyptus seedlings (Lang 2009).

6. Global 'gifts': biodiversity offsets

Rio Tinto/QMM devote approximately USD 3 million dollars per year to 'preserve biodiversity' (Creamer 2008). Despite the adverse impacts of the mine, the company is using biodiversity offsets – the financing of, or provision of land for, biodiversity conservation *outside* of mining zones completely (Rio Tinto 2008a, 2008b, Anstee 2007) as a means of accruing a 'Net Positive Impact (NPI)' on, and 'No Net Loss (NNL)' of, biodiversity (Rio Tinto, 2008b). Designed and administered by Rio Tinto/QMM, biodiversity offsets have become a corporate policy increasingly popular among other multinational mining companies (e.g. Sherritt/Ambatovy, see BBOP 2009); through this policy, Rio Tinto claim to set a 'benchmark' for green mining (Prinsloo 2009).

Rio Tinto/QMM define biodiversity offsets as 'conservation actions designed to compensate for the unavailable residual impacts on biodiversity caused by mining and processing'; an offset 'takes place away from the impact site and normally takes the form of *averted disturbance* or ecological restoration' (Anstee 2007, 1, emphasis added). Through the paradigm of conservation finance and payments for environmental services (PES), the 'offset ideology' is less mitigatory and more compensatory – making up for local damage through land allocation or financial support of nature conservation. Richards suggests that biodiversity offsets transcend traditional 'trade-offs' (such as employment²⁶ as a 'trade-off' for land loss) by offering a 'like-for-like' exchange with regard to the environment (in Ten Kate *et al.* 2004, 53).

Some of the language embedded in the biodiversity offset discourse continues to imply that offsets are being set aside as a remedy to Malagasy people's own environmental impacts rather than those of Rio Tinto/QMM. For instance, Rio Tinto/QMM's 'averted disturbance' strategy is telling in this regard; to Rio Tinto, '[a]verted disturbance involves reducing existing external impacts such as land clearing by other forest users, lessees or owners' (Rio Tinto 2008b, 1). Thus while Rio Tinto's own clearing of land and biodiversity is authorized (by Rio Tinto), the 'existing external impacts' of other land users (namely, Malagasy people) is vilified.

Rio Tinto/QMM mention that '35,000 km² of land is held as part of mining tenements' with only '10 percent "needed"' for mineral exploitation; these land tenements are currently being set aside as offsets (Anstee 2007, 4). NGO partners involved in offset implementation include BirdLife International, World Conservation Society, Conservation International, and USAID. Rio Tinto/QMM note that '31,275 ha of biodiversity offsets' will be managed outside of the mining zone completely (Rio Tinto 2008a, 2) in Tsitongambarika and Ambatotsirongorongo.

²⁶While some local people had been hired to work for Rio Tinto/QMM during the construction phase of the project, at the time of research, most people were being laid off (following a three-year contract).

Mining-conservation partnerships thus appear important to biodiversity offset design. BirdLife International recently stated that the Tsitongambarika biodiversity offset will ‘enhance water security for QMM’s mining operations,’ thus implying some use of water in the offset site (BirdLife International 2012b).

In addition to biodiversity offsetting, Rio Tinto/QMM mention that ‘seed lots’ are ‘sent regularly to the Millennium Seed Bank (MSB) at Kew Gardens for long term storage and conservation (Rio Tinto 2007a, Kew Royal Botanical Gardens 2009a)’. Kew, a corporate partner of Rio Tinto, was also involved in research carried for the ‘biodiversity book’ (see Figure 2). The ‘Millennium Seed Bank’ is a storage-house for millions of varieties of plant genes from all over the world. It is funded by the Wellcome Trust, a major financier of biomedical research; while the purpose of the seed bank is conservation – the official slogan of the Millennium Seed Bank is ‘saving plants for our future’ – the Wellcome Trust mentions that it has specific interests in the ‘medicinal qualities’ of Kew’s seed reserves (Wellcome Trust 2009).

Rio Tinto and Kew are also working together with the intention to create ‘a domestication programme of forest species for the house plant market’:

Our partner QMM hopes to raise local incomes and reduce exploitation of the few remaining patches of forest, which it is actively conserving. The Threatened Plants Project focused on propagating and marketing threatened orchid species through PBZT to take pressure off wild populations (Kew Royal Botanic Gardens 2009b).

The Kew-Rio Tinto partnership points to the way in which the Mandena enclosure has created new spaces for commodification and primitive accumulation (see Corson 2011). This is evidenced in both the ‘marketing’ of ‘threatened orchid species’ and the biomedical interests of Wellcome Trust. An advertisement on Kew’s website describes an ‘adopt a seed’ campaign where, for 1000 GBP, one can save a seed from extinction;²⁷ Kew writes, ‘we will recognise your support with an adoption pack containing a certificate and a picture of the plant species you’re supporting’ (Kew Royal Botanic Gardens 2010).

On Kew’s website, as in the ‘biodiversity book’ (Figure 2), no mention is made of Rio Tinto/QMM’s own impacts on biodiversity; the company is praised for ‘actively conserving’ the remaining fragments of littoral forest and indeed *saving* species – albeit from local people: ‘Independent studies have demonstrated that *these forests are rapidly deteriorating due to pressure from the local people* (Kew Royal Botanic Gardens 2010, emphasis added). Kew echoes Rio Tinto/QMM’s prediction of future forest loss: ‘It is generally accepted that the remaining littoral forest fragments will be essentially destroyed within the next 2 or 3 decades unless an effective protection strategy is defined and the resources of the mining company properly harnessed to promote biodiversity conservation’ (Kew Royal Botanic Gardens 2010). Ironically, by creating scarcity of biodiversity, Rio Tinto is creating new forms of world heritage in the fragments set aside from mining; global heritage becomes embedded in genetic material set aside for [foreign] protection (see Evers and Seagle, forthcoming).

²⁷The promise that funders can ‘save’ seeds is misleading; as stated on the website, Kew concedes that many of the seeds have ‘already been saved’ and that the 1000 GBP goes towards keeping the organisation running.

7. Discussion and conclusions

The purpose of this paper was to put various mining impacts observed in 2009 (construction of a dam, relocation, deforestation, restricted natural resource access, enforcement of conservation) in dialogue with the discourses and media used by the company to access land and legitimize the project. Within this framework, it is argued that Rio Tinto/QMM's acquisition of and access to land is accomplished (at least in part) through biodiversity offsets, sustainability discourses and deals brokered through mining-conservation partnerships; the compensation from such deals may be viewed as development 'gifts' which contain an ideology of (market) offsetting or remediation. This has led to a process of inversion, where local Malagasy people – rather than Rio Tinto – are mediated as the primary culprits of degradation.

This paper also aimed to contribute to recent scholarship analyzing the interdependencies between seemingly discrete types of land acquisitions, focusing specifically on how convergences between multinational mining and conservation in Madagascar may constitute a form of 'green grabbing'. Premised upon a broader 'offset ideology', mining-conservation partnerships appear to involve the swapping of media, sustainability discourses, land, and financial resources. As such, in terms of land access and legitimization, current trends suggest that mining and conservation have much more in common with one another than previously thought. The corporate sector plays an increasingly important role in negotiating regional and global sustainability aims, though it must be remembered that the CEOs of major multinational mining companies consciously adopted 'sustainability' as a means of addressing business risks during the GMI (Global Mining Initiative) in 1999.

Case studies described how the Rio Tinto/QMM ilmenite mine encompasses a growing nexus of neoliberalism and conservation in Madagascar, involving new relations between media, power and discourse. Tsing (2000, 120) suggests that neoliberalism contains 'a set of scale making projects' within a performative 'economy of appearances'; in the case of Rio Tinto/QMM, this involves reproducing certain representations of the 'local' in global imaginaries through media outlets. Rio Tinto/QMM effectively link local processes of biodiversity loss (purported to be caused by local Malagasy people) to the global health of all ecosystems. By drawing upon this broader meta-narrative, actual impacts of the mine are not only abstracted, but inverted by the company's wider sustainable development rhetoric. Compensatory techniques such as biodiversity offsets seem geared more towards global rather than local concerns for biodiversity loss; this is problematic given local Malagasy people's reliance upon species diversity. While Rio Tinto/QMM markets biodiversity as a universal privilege and part of a larger, 'global body', it actively denies locals a right to access it.

It was argued that 'performances of sustainability' have become an inextricable part of market capitalist competition and expansion within the extractive industry. Performing sustainability relates strongly to Foucault's notion of the 'politics of truth' in corporate media (McMullan and McClung 2006), namely that the production of truth emerges within certain political, historical and discursive contexts, and as such, within certain power-knowledge formations (see Foucault 1980). Lemke suggests that the 'politics of truth' could be aptly applied to the discourse on sustainable development, wherein '[n]ature and life itself are being drawn into the economic discourse of efficient resource management' (2000, 8). Luke (2005, 230) goes on to suggest that sustainability rhetoric contains underlying

valorizations of what constitutes ‘right’ or ‘wrong’ natural resource use, which is often embedded in Post-Enlightenment notions of technological ‘efficiency’ and ‘rationalism’. We can see, in the many examples described above, that this is the case with Rio Tinto’s approach to sustainable development, which is focused on the disembedding of local bodies from nature on the one hand, and embedding extra-local bodies into nature on the other (through scientific publications, foreign seed storage, ecotourism, birdwatching events, funding of scientific research in Mandena).

While it is important to view Rio Tinto’s legitimizing strategies within the context of new power formations underpinning mimesis, media and discourse, it is crucial to go beyond discourse to consider how local land users experience and perceive of the mine. Corporate power and engagement in ‘sustainable development’ not only involve discursive representations but also real, physical interventions in human bodies – in this case, the bodies of cultivators, fishermen/women, women who weave *mahampy*, and the ancestors themselves.²⁸ Environmental changes had a direct impact on local conceptions of health, food security and sustainability; this is most evident in reference to ‘gift giving’ as fundamentally different to the value and importance of land and natural resources to past (ancestors), present and future generations.

As Foucault suggests, ‘power is not an institution; and not a structure; neither is it a certain strength we are endowed with; it is the name that one attributes to a complex strategical situation in a particular society’ (1978, 93). In turn, ‘biopower’, which ‘was without question an indispensable element in the development of capitalism’ (Foucault 1978, 140–141), as a productive technique (as opposed to negating, in the vein of ‘sovereign power’) has the role of assuring, supporting and reinforcing life – indeed, putting life in order (94–95, 138). We can see this in Rio Tinto/QMM’s integrated compensation programme, which is focused on ‘improving’ natural resource use through control of land, water and biodiversity. With regard to the various impacts arising from the Rio Tinto ilmenite mine, biopower allows *access* to bodies (both ecosystems and humans), but also *produces* new types of bodies reliant on capitalism (not semi-subsistence). It is thus argued that the impacts of the project cannot be seen in purely economic terms, but rather as embedded within a wider context of real, material interventions in human bodies and cosmologies – which are on the one hand disengaged from point resource use (subsistence) and on the other absorbed into new relations of production/consumption, based on capitalism and the market.

In the vein of biopower, these changes are often mediated by Rio Tinto under the banner of ‘sustainable development’ and, as such, ‘for the good’ of Malagasy people. These claims must be seen within the context of Rio Tinto’s simultaneous need to legitimise itself by positioning local resource users as the main culprits of degradation, isolated from markets and ‘rational’ resource use, and, as such, anathema to sustainable development. Taussig (1993, 68) holds that, in contrast to mimicry, mimesis is ‘both the faculty of imitation and the deployment of that faculty in sensuous knowing’. Within this context, any process of mimesis conceals a ‘compulsion to become the Other’ (Taussig 1993, 13). Importantly, mimesis allows for a copy or replication to take on the power of the represented (Taussig 1993, 16). Herein we can see similarities to Rio Tinto/QMM’s mimesis of conservationist

²⁸It is important to note that these views were expressed by informants in 2009 and may have since changed.

discourse and media, which allows the company to take on the power of the ‘Other’ – namely an NGO engaged in biodiversity conservation and ‘sustainable’ natural resource management. Taussig goes on to state that the phenomenon of the ‘mimetic faculty’ lies in ‘the power of the copy to *influence* what it is a copy of’ (1993, 250, emphasis added). In this sense, it is interesting to consider how what is being copied – conservation NGOs – may be influenced by, complicit in or convinced of – the copy itself. Conversely, the company’s positioning of Malagasy people as alterior – the ‘environmental Other’ – is also part of the mimicking process, and shapes its ‘green renaissance’. As Judith Butler has argued, processes of exclusion (‘Othering’) play a part in shaping and constituting identity: ‘no particular identity can emerge without presuming and enacting the exclusion of others, and this constitutive exclusion or antagonism is the shared and equal condition of all identity-constitution’ (Butler 2000, 31).

Several examples have shown how Rio Tinto/QMM’s approach to compensating both locally and globally have inverted various social-environmental impacts of the mine and enforced market rationalities of sustainable development on local stakeholders. Similar to biopower’s aim to ‘maximize’ life through efficiency, Rio Tinto/QMM legitimise their promotion of sustainable development (as a power/knowledge system; see Luke 1995), as beneficial to individuals, regardless of the social and environmental impacts arising from the mine. Biopower, then, not only acts upon bodies, but also legitimizes itself in the process. As this particular example of neoliberal conservation demonstrates, the mining project imparts very tangible social-environmental impacts on landscapes, livelihoods and human bodies, however the project itself is simultaneously legitimised through processes of inversion.

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