



# ISSUES OF MINERAL EXPLORATION AND MINING IN FIJI

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***Issues of Mineral Exploration and Mining in Fiji***

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## Introduction

Inherent in the process of mining is the prodigious potential for social and environmental destruction combined with the contrasting prospect of acquiring prolific revenue with the capacity to raise the national standard of living and lift entire populations out of poverty. In consideration of the above, the guiding principles of the regulatory environment in which mining occurs must be to implement mechanisms through which the risks are minimised and advantages maximised. This process is complicated by the plethora of relevant stakeholders with varied and often contrasting interests. At the core of this literature review is an understanding that all stakeholder interests must be evaluated and balanced against each other in order to arrive at an egalitarian equilibrium in which the rights of the individual, the economic needs of the masses, and environmental concerns have all been appropriately considered during the decision making process. This literature review analyses the prevailing balance between stakeholder interests from multifaceted angles in order to determine whether an optimal balance has been achieved. Furthermore, issues of deep sea mining and an outline of the 'resource curse' discourse is included in recognition of the correlation between the development of Fiji's mining sector and the pertinence of these two aspects of mining. Also, where relevant, the principle of economic justice is referenced, which can be understood broadly as economic "fairness across generations" (Kibasi2017). Ultimately, this literature review seeks to address the evident deficiency of academic resources by providing a concise overview of mining within the contemporary Fijian context.

### ***Issues of Consent***

A vast majority of Fijian land is inalienable native land collectively owned by iTaukei land owning units called *mataqali*. The rights of the mataqali to determine the leasing and licensing of their own land is severely limited by the fiduciary relationship enshrined in the *Native Land Trust Act 1991*, which invests the iTaukei Land Trust Board (TLTB) with control over all native land to be administered "for the benefit of the Fijian owners" (s4). The authority of the TLTB in the mining sector is severely limited by the *Mining Act 1978* which vests the Director of Mines with the authority to disseminate mining licenses (s18). Accordingly, the TLTB retains the authority to negotiate leasing agreements whilst the Mineral Resource Department (MRD), chaired by the Director of Mines, retains the authority to grant licenses. The only situation where the consent of the mataqali is considered in the distribution of these mineral exploration or mining leases is outlined in s11 of the *Mining Act 1978*. According to this provision, consent is only required where the proposed mining site is; within 30 meters of an inhabited house or building, on any cultivated land or land rendered fit for planting and habitually used for the planting of crops, or on any land within the boundaries of any city or town. However, even under these limited circumstances, the consent of the landowners does not have to be respected. If consent is withheld, an appeal may be lodged with the Mining Appeals Board, which is empowered with appellate jurisdiction to vitiate non-consent in a final non-appealable decision (s11(4)). Furthermore, the Director of Mines is authorized to grant prospecting and mining licences even if the mining site would be located in any of the above barred locations, irrespective of mataqali consent (s11(3)).

Compounding onto this erosion of the rights of landowner consent, the State has the power to acquire land for public purposes. This is pursuant to section 27 of the *Constitution of the Republic of Fiji (2013)* (Constitution) as well as section 3 of the *Crown Acquisition of Lands*

### ***Issues of Mineral Exploration and Mining in Fiji***

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*Act (1978)* which empowers the state to take possession of land for ‘public purpose’. ‘Public purpose’ is defined broadly as that which is “necessary or expedient ... to promote the public benefit” (s2). Such provisions effectively disallow landowners to object to mining companies entering, significantly altering, and ultimately risking their own land. This disenfranchisement of the rights of land owners to consent to the mining process is underpinned by section 30 of the Constitution which enshrines that “all minerals in or under any land or water, are owned by the State”. The State is thereby empowered with the “full liberty at all times to search, dig for and carry away all such minerals of every description and for that purpose to enter upon all lands throughout Fiji” (*Mining Act 1978 (s3(2))*). Accordingly, the economic benefits that accrue from mining at a national level take precedence over respecting landowner rights to protect and conserve their own land.

### ***Financial Benefits of Mining***

Consideration of economic justice necessitates ensuring the fair distribution of financial benefits between relevant stakeholders. Section 30 of the Constitution not only enshrines the government’s exclusive ownership over all mineral resources, but also entrenches the right of landowners to receive “a fair share of royalties or other money”. Royalties are a form of tax “unique to the natural resource sector” (Otto et al 2006: 16) which is based on either the quantity or value of the material mined. The advantages of a royalty tax system is that it ensures revenue even in times when mineral prices are low or expenses are high and a mine may not generate a significant taxable income. Section 54 of the *Mining Act 1978* provides that “all minerals obtained in the course of prospecting or mining operations shall be liable to the prescribed royalties”, and goes on to calculate the specific royalty rates as follows: royalties for iron ore and bauxite is 3% of stated value (s6(1)(a)) and for all other minerals royalties are to be calculated at 5% of stated value. The *Mining Act 1978* regulation 6 outlines that the value of such minerals shall be determined by the Director of Mines “having regard to prevailing world market prices”. Thus Fiji has implemented a value-based royalty system, also referred to as *ad volarem* royalties (Otto et al 2006: 51). Professor James Otto argues that value-based royalty calculation are fairer and ultimately economically sounder practises relative to unit-based calculations, which are determined according to the weight of the resources mined (Otto et al 2006: 30). This is because if the quality or value of the mineral is not high enough, say for example it is mixed with a high ratio of waste product, a unit-based royalty calculation may ensure that a mine chooses to leave the mineral in the ground. In contrast, royalty payments based on a measure of profitability “automatically adjusts the amount payable based on high or low profits” (Otto et al 2006: 19). However, because *ad volarem* royalties are payable irrespective of whether the mine is profiting or losing money, the mining industry prefers royalty calculations to be determined as a percentage of profit. Profit-based calculations are only practical for developed nations because they provide “an uncertain revenue flow to government and are administratively complex” (Otto et al 2006: 269). However the advantage of profit-based royalties are “high-level, long-term tax revenues (which) satisfy most investor criteria” (Otto et al 2006: 269). As Fiji’s mining and administration sector develops, reforms to mining royalties should similarly change and reflect the market forces in order to achieve the optimal taxation balance between high income revenues and attractive investment environment. Furthermore, a parliamentary inquiry into royalties owed to *mataqali’s* affected by the Bua Bauxite mine suggested that the “royalty rate imposed by the government should be reviewed” in order to “reflect the ‘fair share’ payment to the

landowners” (Standing Committee on Natural Resources 2015: 5). Whilst not necessarily critiquing the set royalty rate, the Parliamentary Standing Committee’s recommendation suggests a transparency issue which can be addressed by the government releasing the reasoning and calculations underpinning the current royalty rates.

Rent is another significant source of income received by local communities as a result of mining. For the Bua Bauxite mining leases, the premium rental agreement is FJ\$567,000 to be distributed amongst the five mataqali (Standing Committee on Natural Resources 2015: 22). An additional \$275,000 was paid to mataqali Navakasiga as compensation for lost fishing rights (Standing Committee on Natural Resources 2015: 15). The Bauxite mine leasing negotiations were the first to be conducted by the Land Use Bank (LUB). The LUB, established by the *Land Use Decree 2010* and managed by the Land Use Unit within the Ministry of Lands and Mineral Resources (s8), has disrupted the traditional monopoly of the TLTB by providing an alternative land lease distribution mechanism. The LUB was instituted in order to better utilise available land (*Land Use Decree 2010* s3). In distributing leases, the LUB must specifically balance “the best interest of the land owners” with the “overall wellbeing of the economy” (s11). It is unclear which of these stakeholder interests, when not in unison, is given preference. However, just as with the TLTB, landowners are excluded from the decision making process. A mataqali wishing to join the LUB requires the consent of 60% of the mataqali over the age of 18 (Asian Development Bank 2013: 76). Once joined, the Mataqali land is surveyed and registered whereby it may be reviewed by potential lessors (Asian Development Bank 2013: 76). Once the requisite 60% has voted to join the LUB, the landowners lose all further rights to determine to whom, at what price, and for how long the lease shall be. Furthermore, no adjudicating body, including; courts, tribunals, or commissions, has the jurisdiction to hear any disputes regarding the legality, propriety or validity of any decision made by the LUB (*Land Use Decree 2010(s15)*).

The attraction of the LUB for landowners is that there is no attached administrative fee deducted from the resulting rental agreements. In contrast, the TLTB has the authority to deduct an amount up to 25% of the total rental income as an administration fee (*Native Land Trust Act 1985* (s14)). Though this administration fee has been set at 15% since early 2000 (Asian Development Bank 2013: 75), the LUB does not deduct any such fees, thus leaving more money to be distributed amongst the mataqali. Furthermore, in having challenged the monopoly of the TLTB, the LUB has forced the TLTB to adopt certain reforms in order to continue to attract land owners (2000 (Asian Development Bank 2013: 76). Previously, section 3 of *Native Land (Leases and Licenses) Regulations 1985*, determined that, following the administrative fee deductions, the remaining funds were to be distributed as follows: 5% to Turaga i taukei, 10% to Turaga ni Yavusa, 15% to Turaga ni Mataqali, with the balance divided amongst the individual members of the Mataqali. However, the *Native Land Trust (Leases and Licenses) (Amendment) Regulations 2010* repealed this provision and substituted it with regulation 2(a) which determined that after any administrative fee deductions remaining funds “shall be distributed by the Board to all living members of the proprietary unity, in equal proportion”. This amendment spurred by the competition which the LUB represents, better aligns with notions of economic justice by adhering to universal equalities rather than traditional hereditary advantages.

Mining represents a dramatic influx of funds into low income communities which often lack financial management capacity. As a result, and a reflection of the authority of the LUB in allocating funds, the LUB has established a Future Generations Fund comprised of \$600,000 set aside from the royalty payments for the future generations of the three landowning clans of Noro, Nalutu, Naicobo on which the bauxite mine is located (Rawalai 2017). The Future Generation Fund is a new concept that so far has only been applied to the Nawailevu bauxite lease. A parliamentary inquiry into the distribution of these funds found that the fund had not been based upon any policy or regulation and thus recommended that, if this system is to be adopted in future mining leases than, “it has to be thoroughly researched and properly regulated” (Standing Committee on Natural Resources 2015: 24). Aside from issues of distribution, there is no research indicating the advantages of such a fund or the community response to the initiative. However, considerations of mataqali “inexperience in dealing with money and investment” (Boydell et al 2008: 24) has led to the suggestion that governments should “facilitate awareness and training in investments to help (land owning units) in their decision on how to use their lease money” (Standing Committee on Natural Resources 2015: 5). According to such preliminary deliberations the advent of Future Generation Funds, whilst furthering the paternalistic trend of isolating land owners from the decision making process, may in fact be in the best financial interest of the mataqali.

In addition to these significant financial advantages, mining companies will often also provide surrounding communities with a range of non-pecuniary benefits. For example, the Bauxite mine in Bua employs 95 Fijians, from a total staff of 100, and has donated FJ\$30,000 to the Bua Scholarship Fund, as well as 500 school bags, 24 computers, and 12 printers to the school (Standing Committee on Natural Resources 2015: 18). This influx of extensive financial and non-pecuniary benefits in Fiji’s rural areas has the capacity to lift the surrounding villagers out of poverty, which represents a significant advantage of mining considering that 36.7% of rural Fijians live below the poverty line (Fiji Bureau of Statistics 2015: 4).

In Fiji, the financial benefits of mining are the greatest in terms of tax revenue. Mining currently comprises approximately 2% of Fiji’s GDP (Fiji Bureau of Statistics 2016). However, considering that mining is an “emerging sector” (Asian Development Bank 2014: 3) within Fiji, with the “true mineral potential still largely untapped” (Finau 2016: 5), the future gains from exploiting mineral resources in Fiji is potentially “tremendous” (Finau 2016: 5). Fiji has adopted a mixed tax system, which includes the *ad volarem* royalty rate discussed above as well as a 20% corporate income tax (KPMG Asia Pacific Tax Centre 2014: 1). One of the core tenants of good governance is to implement the optimal level of taxation. This optimizing level “maximises the net present value of the social benefits flowing from the mineral sector over the long term” (Otto et al 2006: 266). This requires maintaining a balance, because a tax system which is set too high will disincentivize industry investment, and a tax system set too low will lose revenue valuable to the public sector. Fiji’s numerous ongoing prospective mining campaigns, combined with the soon to open mines such as the Namosi Waisoi mine, indicates that Fiji has hit upon a relatively optimal taxation level.

As part of the Fijian mineral sector taxation system, the Fijian government recognises that the mining industry is different from other industries and thus provides special treatment in the form of tax incentives enshrined in *Income Tax Act 1985*. Mining companies often

require a lengthy period of exploration in which there is no revenue and necessitate large amount of capital during the development and construction phase. Accordingly, section 21(c)(ii) of the *Income Tax Act 1985* states that the amount expended on prospecting for minerals may be deducted from the total income. Furthermore, capital expenditure incurred “in the development of mines and the extraction treatment refinement and sale of minerals therefrom” (s23(2)(a)) and “expenditure incurred in the acquisition of any mining lease or tenement”(s23(2)(b)) may have one fifth of this amount set off against the total income (s23). Such tax incentives recognise the volatile nature of mineral markets and are aimed at attracting investors in recognition that the “government lack(s) the capacity to extract the resource themselves” (Finau 2016: 7). Furthermore, s16(2)(a) of the *Income Tax Act 1985* provides that a mining company may be exempt, in whole or in part, from being taxed if the Minister of Mines is “satisfied that it is expedient for the economic development of Fiji”. In choosing to apply this prerogative, the lessons learnt from the 1983 Emperor Gold mine taxation agreement should be borne in mind. From 1954 to 2006, the Emperor Gold mine was Fiji’s largest private sector employer which, according to Finau, “gave Emperor Gold mine significant bargaining power in its negotiation with Government” (2016: 3). The negotiated taxation agreement was highly beneficial to Emperor Gold in that it was “unique for being the only taxation regime that effectively exempted the developer from any income tax for a period of some twenty-seven years” (Grynberg et al 1997: 71). Despite such preferential treatment, the mine shut down in 2006 amid allegations of low wages and exploitative work conditions (Finau 2016: 3). This taxation fiasco emphasises the need to maintain the optimal taxation level, which requires a balance between investment incentives and government revenue.

### ***Environmental Impact Assessments***

Inherent within the process of mining are substantial environmental risks which have the potential to permanently eradicate the society and ecosystem surrounding it. Accountability mechanisms are therefore pertinent due to the historic precedent that “corporations cannot be trusted to enhance social and environmental welfare” (Finau 2013: 296). The *Environmental Management Act 2007* (EMA), which came into effect January 2008, implements a number of prerequisite conditions applied to companies seeking to engage in mining and other environmentally hazardous industries, with the express purpose to “apply the principles of sustainable use and development of natural resources” (s3). The United Nations Sustainable Development Report has described the EMA legislative provisions as a series of “pragmatic policies towards compliance with acceptable socio-environmental standards” (United Nations Development Project 2011: 7). A key feature of the EMA is the requirement for an environmental impacts assessment (EIA) to be completed for all proposed developments listed under Schedule 2 of the Act, which includes mining. Though considered to be a “major prerequisite” (United Nations Development Project 2011: 9) to the mining process, the effectiveness of the EIA policy continues to be debated.

The EIA process is outlined in the EMA and the subsidiary *Environmental Management (EIA process) Regulations 2007*. According to these provisions, there are three distinct stages to the EIA process (EMA s28):

1. **Screening:** screening, involves determining whether an EIA is necessary for the particular development proposal. According to the EMA, an EIA is a mandatory prerequisite for all undertakings that “will cause a significant environmental or

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resource management impact” (s27(4)). The nature of mining ensures that all mining activities must therefore be subject to the EIA process.

2. **Scoping:** The purpose of this stage is to “establish the scope of the EIA study on the proposal and to decide the terms of reference” (r12). During the scoping process, an EIA study will be conducted with the primary purpose to “identify possible environmental impacts which will require further assessment in the report” (MESCAL 2015: 60). This involves the processing authority, which for mining applications is the Department of Environment, carrying out an inspection of the proposed site and consultations with relevant stakeholders (r12 – r13). The processing authority “may if it considers appropriate involve the public in the scoping exercise” (r18). Unfortunately, public feedback indicates that public engagement by the processing authority remains rare. However, during this process, the ‘proponent’ (applicant) must conduct at least one public consultation (r23(4)).
3. **Preparation:** The EIA report is based upon the EIA study and must be prepared by an accredited consultant at the proponents expense (EMA s28(4)). The report must: summarise the public consultations, provide a comprehensive report of the potential environmental impacts of the proposal, and suggest measures to mitigate negative impacts (s28 and r24).
4. **Review:** Once the report has been submitted, it is to be reviewed by the approving authority or a review committee appointed by the approving authority. As part of the review process, the process authority must make the full report available “at appropriate locations” for public inspection (r28). If the project involves a “major development proposal”, which includes all mining proposals (schedule 2 of the EMA), then notice of the report must be announced on all radio and television stations that broadcast in the area, as well as in every newspaper circulating within the relevant area (r28). Such notices must inform the public on the location of the EIA report and of the 28 day time limit for public submissions (r28). Furthermore, the proponent must conduct at least one public consultation meeting during the review process. This meeting must take place within the vicinity of the area of the proposed development, and the meeting must take place within 21 days of submission (r30).
5. **The final phase of the EIA process is the decision.** The processing authority must produce a written report setting out its decision within 35 days of having received the EIA report (r29). The decision must take into account; public concern, feasibility of mitigation techniques, nature and scope of development, and the significance of the affected environment (s27). If the approving authority fails to consider any of these issues than the decision may be challenged in court. The processing authority has the authority to disapprove and approve the proposal with or without conditions. This is a broad discretion to implement approval conditions including, but not limited to; monitoring and reporting conditions, limits to emissions, required disposal manner, procedures for cessation of operations and rehabilitation of land (r31). Breach of any conditions holds a maximum penalty

of FD\$250,000 and/or 3 years prison (s43). Any person who disagrees with the EIA decision may appeal to the Environment Tribunal within 21 days of the decision (s.31).

Significant issues with Fiji's EIA process are evident from an analysis of the Sigatoka River case-study. Today, dredging is being undertaken by China Railway First Group, and Dome Gold Mines is extracting iron-ore from sand within the area. In December 2014 Dome Gold Mines submitted an EIA which concluded that "the proposed mining, dredging and mineral extraction development project is likely to have significant economic benefits to the local area, the region and the Country of Fiji and local residents are likely to benefit from the increase in productivity of land, river and marine environment and through job opportunities" (Dome Gold Mines 2018). The report was formally approved by the Department of Environment, yet the "validity and objectivity" (Pearce et al 2017: 4) of the report has been heavily criticised for failing to assess the "adverse social impacts of the proposed mining development" (Pearce et al 2017: 4). The Nasigatoka district at the Sigatoka River is comprised of seven villages with a combined population of 2,733 people (Pearce et al 2017: 9). These villagers "depend heavily on the river" for fishing, farming and tourism (Pearce et al 2017: 9). A recent study assessed the impact of the mine on the lives of the neighbouring populations by interviewing a cross-section of the *mataqali* population. These interviews revealed that some of the biggest impacts have been the destruction of a favourite picnicking, fishing, and crab collection spot due to the placing a large spoil piles by the China Group (Pearce et al 2017: 23). Participants also noted that the texture of crab meat had become tougher, which is likely the result of higher salt levels in the water, which is a consequence of dredging (Pearce et al 2017: 28). However, the most widely reported issue was a "great deal of uncertainty among participants about the potential negative effects of ongoing future dredging" (Pearce et al 2017: 32). Over half of participants felt that a proper EIA had not been conducted and that they had not been involved in the decision making process (Pearce et al 2017: 28). Dr Tristan Pearce, in interviews with numerous villagers affected by the Sigatoka River dredging project and iron ore extraction, discovered that isolation of the customary and legal native land owners from the decision making process had engendered significant "confusion, worry, mistrust and anger among participants. Dr Pearce's conclusion acknowledged that "most of the participants concerns can be addressed through improved consultation and management practises" (Pearce et al 2017: 43). Evidently, by failing to adequately engage the local population, the EIA process is viewed with distrust which results in significant and lasting anxieties over the future safety of the area. The study concluded by noting several limitations of the EIA process, including; shortfalls in human resources, inadequate quality control of reporting, insufficient compliance monitoring and enforcement (Pearce et al 2017: 8). However, the reports most pressing recommendation was that "efforts are needed to improve public engagement and participation in EIA in Fiji" (Pearce et al 2017: 8). These findings were similarly shared by the Parliamentary Standing Committee, which when hearing a complaint from the *mataqali* on whose land the Bua Bauxite mine is located, concluded that "lack of information, awareness programs and engagement of land owners in the consultation process may have resulted in the filing of this petition" (Standing Committee on Natural Resources 2015: 23). The Parliamentary Committee went on to criticize the mining lease granting process which ensured that "land owners were not privy nor partake in the lease and contract agreement negotiations which totally eliminated them from participating meaningfully in business

process” (Standing Committee on Natural Resources 2015: 23). This evident failure of the EIA process to engage successfully with the landowners is contrary to the provisions of the Fiji’s Green Growth Framework, which emphasises the importance of “empowering people by ensuring they are consulted in the development decision-making machinery” (Ministry of Strategic Planning 2014: 5). Accordingly, the EIA process has failed to entrench a suitable amount of participation from the surrounding communities.

To remedy these negative impacts arising from iTaukei exclusion from the decision making process, Fiji’s National REDD+ Programme advocates for the development of a national guideline for Free, Prior and Informed Consent (FPIC). The introduction of FPIC would bring the Fijian government in line with vanguard international standards as evidenced by the International Council on Mining and Metals (ICMM). According to the ICMM, FPIC consists of three requisites whereby landowners would; freely make decisions without coercion, with sufficient time, and fully informed about the project and its potential impacts and benefits. According to the conclusions of the Parliamentary Standing Committee, and Dr Pearce’s interviews, increased land owner participation in the lease distribution process, such as through the implementation of FPIC, would remove persistent and widespread concerns, anxieties and mistrusts landowners have towards mining. As traditional land owners, with tangible economic and subsistence related interests as well as intangible spiritual and cultural connections with the land, the voices of traditional land owners deserve to be heard within the decision making process. In considering the implementation of FPIC it is important to consider the fairness from an economic justice perspective, of the situation whereby the land owning units refuse to grant consent and thereby veto the implementation of an industry which has the potential to greatly enhance the Fijian GDP. As Dr Waden Narsey argues, even in the face of tremendous environmental threats, local communities cannot be expected to reject mining applications “as their immediate financial and economic benefits are likely to be very large indeed, and will take many of them out of poverty” (2011). Accordingly, though not likely to significantly impede the development of the mining sector in Fiji, the implementation of FPIC would alleviate much of the anxieties and concerns many iTaukei land owners have regarding mining of their land.

The Namosi gold and copper mine, known as the Waisoi Project, is currently undergoing the EIA process. Located 30k from Suva in the biologically diverse Sovi Basin, the Waisoi project has the potential to become the biggest mine in Fiji. The Waisoi project is located in the *tikina* of Namosi, which is comprised of six villages and 24 mataqalis. The proposed mine has already caused divisions within this community, as many members of the community “perceive that their chief is not independent of the mining company” due to the belief that the chief is receiving remunerations from Newcrest Mining Limited (Finau 2016: 8). These tensions within the community were most apparent when the chief tried to quell an anti-mining protest in 2012 (Finau 2016: 8). The significant impact that mining companies have on local communities invariably ensures tensions arise “not only between the community and the mining company but also within the community itself” (Finau 2016: 9). The EIA process, if reformed to include more community participation, could be an avenue through which social tensions are relieved as mataqali and other stake holders gather to discuss, debate, and learn about mining and its impact.

Though the Namosi mine EIA report has yet to be completed, it has already been the source of much doubt and criticisms. The EIA study is being conducted by the international consultancy firm Golder and Associates in partnership with the University of the South Pacific Institute of Applied Science. Professor Narsey suggests that, whilst the University “can be expected to do the best they can”, they will be hampered by a “lack of the most basic information about what exists in the Namosi Environment” (2011). As a result, the study, which was given a maximum one-year completion schedule, is a wholly insufficient timeframe considering the little studied yet biologically diverse ecosystem that is the Sovi Basin (Narsey 2011). Furthermore, issues surround the objectivity of the other entity hired to compile the report. Golder & Associates offer a wide variety of services beyond merely compiling EIA reports. Such services include a range of specialised engineering services for mine operations involving “mine waste, water, rock, engineering, closure and environmental services” (Golder & Associates 2017). Golder & Associates evidently have a vested interest in the success of the EIA process because ultimately the EIA represents “only the beginning of the money making for Golder and Associates out of the Namosi Joint Venture Project” (Narsey 2011). The EIA process is a good opportunity to consolidate company responsibilities and risk management techniques. However, for it to be effective, reforms are required in order to enhance the projects objectivity and reliability, which in turn will increase community trust in the process. Such transparency and increased emphasis of community engagement would allow the EIA process to relieve community tensions and safeguard the socio-environmental interests of Fiji.

In addition to EIA approval, prospective mining companies must attain a pollution permit, in accordance with the EMA. Unless a permit is obtained, a commercial or industrial facility may not discharge any waste into the environment or store, handle, process or control hazardous substances (EMA s35). Engagement with such activities without a permit is considered a serious criminal offence, with penalties up to FJ \$1,000,000 or life imprisonment (EMA s45). There are 10 various waste disposal permits which are distributed by the Department of Environment (*Environment Management (Waste Disposal and Recycling) Regulations 2008* r46). To obtain a permit, a written application must be submitted to the Department of Environment, at which point an inspection of the premise will be carried out. In the case of liquid waste permits, the surrounding area and receiving waters must also be inspected to assess capacity to accept the discharged liquid waste (*Environment Management (Waste Disposal and Recycling) Regulations 2008*, r6). The Department has the broad discretion to attach conditions to the permit (*Environment Management (Waste Disposal and Recycling) Regulations 2008*, r.43). Breach of any of the applied conditions carries a maximum penalty of FJ \$10,000 or 2 years imprisonment (EMA, s44(1)(h)). The Department has broad powers of enforcement of the permit, such as the power to periodically inspect premises, suspend permits, and issue notices (s11). However, unlike the EIA process, which provides, formal though limited opportunities for public participation in decision making, the pollution licensing process does not provide any opportunities for public deliberation and participation. This limitation compounds onto the already evident issue of landowner isolation from decisions even though such decisions hold the greatest risk to negatively impact upon them.

### ***Risks and risk management***

Though mining has the potential to benefit innumerable Fijians through a significant influx of revenue at both local and governmental level, it will almost certainly permanently damage large swathes of pristine environment as well as risk the lives and livelihoods of many Fijians. The Fijian Constitution claims that it is the right of all citizens to have access “to a clean and healthy environment”, this right “includes the right to have the natural world protected for the benefit of present and future generations through legislative and other measures” (s40(1)). Unfortunately, this right is purely symbolic and unenforceable with regards to the mining sector due to the ambiguity of the term ‘necessary’ in the following provision: “To the extent that it is necessary, a law or an administrative action taken under a law may limit, or may authorise the limitation of, the rights set out in this section” (s40(2)). Much of the environmental degradation caused by mining is unavoidable, most commonly the removal of large tracts of forest in order to access underlying minerals. However, as “communities are well acquainted with and often prepared for these complications” the more serious threats arise from unexpected land contamination (Hilson 2002: 66). The right to compensation is enshrined in section 40 of the *Mining Act*, which states that compensation for any surface damage is an “implied condition of every mining tenement holder”. However, compensation often fails to remedy the intangible spiritual and cultural connections that many iTaukei experience towards their land.

The most significant environmental threat posed by the mining industry is the disposal of tailings. The mining industry “produces enormous volumes of waste” (Kossoff et al 2014: 230), a majority of which takes the form of tailings which are mixtures of crushed rock and processing fluids that remain after the extraction. The ratio of tailings to pure product is averaged at 200:1 and therefore the amount of tailings produced is prodigious (Kossoff et al 2014: 230). Tailings are usually stored under water behind dam walls which have been known to “frequently fail” (Kossoff et al 2014: 229), with an estimated failure rate of 1 in 700-1700 (Kossoff et al 2014: 233). The “sheer magnitude and often toxic nature of the material held within tailings dams” ensures that their failure “will invariably affect water and sediment quality, and aquatic and human life for potentially hundreds of km downstream” (Kossoff et al 2014: 235). High levels of arsenic, copper and lead have already been discovered in water samples collected 500 meters downstream from the Tavua River where tailings of a Vatukoula Gold Mine are located (Singh et al 2003: 21). Reports of skin lesions on people who have swum in the river, as well as fish deaths in the vicinity of the discharge, have been noted (Singh et al 2003: 21). A majority of tailing dam failures occur due to unusual meteorological conditions, most prominently rain and seismic activities, both of which frequently occur within Fiji (Kossoff et al 2014: 242). Environmental damage from bauxite mining in Bua includes runoff from the bauxite stock pile at Naiviqiri washing into the Lekutu Bay fishing grounds (Standing Committee on Natural Resources 2015: 24). This has resulted in a depletion in both the quantity and quality of fish. Furthermore, this river system extends to the Great Sea Reef, thus damaging vulnerable and precious ecosystems with the potential knock-on effect of damaging the tourism sector.

Bauxite mining requires a vast amount of land and produces immense volumes of dust. The substantial clearing and removal of land, excavation process, transportation, and stockpiling, combined with wind erosion ensures the continuous dusting of extensive surrounding areas. Therefore air pollution is one of the main issues faced by the surrounding communities. This

### ***Issues of Mineral Exploration and Mining in Fiji***

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process has been shown to create two types of dust; nuisance dust which is too large to be inhaled but has the potential to cause irritation to the eyes, nose and throat, and fine particle dust (Hisham et al 2016). The World Health Organisation advises that there is ‘no safe level’ of fine particle air pollution, as inhalation can cause a wide range of respiratory and cardiovascular disease (WHO 2004). Such risks not only impact upon surrounding villagers, but also mine employees.

Mining is evidently an extremely dangerous job, however in Fiji it remains a low wage profession with the minimum hourly rate for underground workers being \$4.58, which is just \$1.59 above the minimum wage of an unskilled worker (Wages (Mining and Quarrying) Regulations 2015, r.4). The high risk nature of mining work, combined with the high profit margins of mining companies, ensures that the principles of economic justice dictate a higher minimum wage for mining workers. Accordingly to this perspective, it is constitutionally mandated by section 33 of the Fijian Constitution, which enshrines the right to “a just minimum wage”, that mining workers receive a higher minimum wage. Furthermore, miners are specifically excluded from the *Health and Safety at Work Act 1996 (Fiji)* (s3) which is the premier legislation protecting the health and safety of employees at work. This exclusion from the national occupational health and safety legislation is particularly baffling considering the increased risk of injury and death for mine workers. Considering the projected increased growth of Fiji’s mining sector it can be expected that more Fijians will find employment as miners, as a result it is vital that legislation is enacted to protect these workers in order to avoid deaths and workplace accidents.

### ***Mine Closure***

Mining has an enormous impact on the environment and thus provisions for mine closures form an important aspect of the EIA report. Important means ensuring compliance with the EIA and mine closure agreements in the requirement that mining companies provide the government with a bond as surety of compliance. This provision is legislated within the EMA s31(2) as well as the *Mining Act* s26(2)(a) which states that the deposit may be with or without sureties. The amount of the bond is determined by the Mineral Resource Department in consultation with the Department of Environment. Determining the size of the bond represents a balancing act as the government seeks to “ensure that there are sufficient funds to complete a satisfactory rehabilitation program but at the same time maintain an attractive investment climate” (The World Bank Group Oil Gas and Mining Division 2009: 52). Expenses related to mine closure are potentially vast, a report by the World Bank estimated that for a medium-size mine closure, expenses could reach US\$15 million and for larger mines, costs could reach up to US\$50 million (The World Bank Group Oil Gas and Mining Division 2009: 1). However, as Dr Miller argues, if hard security cash deposits were demanded at the start of all mining projects “the drain on capital available for mining would be substantial” (2005: 44) and would ultimately impede investment. Thus, Dr Miller emphasises the use of “effective protection” rather than “maximum protection” (2005: 44). Effective protection can be defined as that which meets “environmental objectives and at the same time is incompatible with a healthy investment climate” (Miller 2005: 16). In order to achieve this balance the price of bonds ought to remain variable from company to company and mining site to mining site. The World Bank recommends that factors to be considered when determining the price of bonds should include; “the projected life of the mine, the nature of the operations, the complexity of environmental

### ***Issues of Mineral Exploration and Mining in Fiji***

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issues, the financial and environmental management capacity of the borrower or project sponsor, and the jurisdiction in which the mine is located” (Ackermann 1999: 284). In Fiji, deliberations of mining bonds remain flexible though high. The government currently holds a FD\$1 billion bond from Aurum Exploration to ensure compliance with the EIA report regarding the Bauxite mine (Pratap 2014).

Returning mined land to its pre-mined condition is impossible considering that mining will “inevitably leave permanent and visible alterations” to the surrounding environment (Miller 2005: 10). In Fiji, issues surrounding land rehabilitation are embodied in controversies surrounding the mine closure agreement of the Nawailevu Bauxite mine. According to the agreement, Aurum Exploration is to plant 30,000 pines on the mining site in order to replace the pine plantation that had previously existed (Pratap 2014). However, the *Mining Act* (s20(4)(a)) allows mines to cut down and make use of any tree on the land, thus if the pines mature within the 20 year lease period, Aurum will also hold the rights to harvest them. Aurum is already nurturing seedlings and the Minister of Environment has confirmed their right to harvest (Pratap 2014). The exploitation of such loopholes ensures that Fiji would benefit from the adoption of international mine closure trends as reflected by the Whitehorse Mining Initiative (WMI) (Natural Resources Canada 2017). WMI conceives of land rehabilitation in the form of the restoration of a functioning ecosystem, rather than the traditional returning of land to its pre-mined state. This principle involves ensuring that mined sites are rehabilitated with the goal of establishing “self-sustaining ecosystems compatible with a healthy environment and with human activities” (Miller 2005: 10). Mine closure agreements are important in preventing mining companies from collecting a nation’s mineral wealth and then leaving behind vast and expensive evidence of land degradation. In order to enact effective land rehabilitation mechanisms, governments must ensure specific and appropriate obligations are spelt out within EIA reports, and in order to ensure compliance, appropriate bonds are attained.

### ***Deep Sea Mining***

Deep sea mining is currently at the vanguard of the global mining industry. The world’s first deep sea mine is scheduled to begin operations in 2019 at depths of 2km located off the Papua New Guinea coast (Kathryn et al 2018: 1). Coastal states, such as Fiji, possess exclusive rights and jurisdiction over the resources within a 370 kilometre exclusive economic zone. Much of Fiji’s exclusive economic zone has been found to include “highly prospective deposits of copper, gold, zinc, silver and chemical elements” (Binney et al 2016: 1). Though the Fijian government has yet to issue any mining licences within its boundaries, over 5 seabed exploration licenses and 7 oil exploration licences have been issued (Binney et al 2016: 4). With global demand from mined resources growing the potential economic benefits of deep sea mining are enormous. However, in a recent comprehensive study of deep sea mining, researches from the University of Exeter and Green Peace, have concluded that deep sea mining is a tremendously risky operation which could seriously damage and destroy sensitive and yet unexplored ecosystems (Kathryn et al 2018). According to the research team “serious and widespread negative impacts on biodiversity are inevitable and likely to be irreversible” (Kathryn et al 2018: 2). Considering there has yet to be any large scale trials, the damage that may arise from this mining operation is uncertain. However, ocean currents ensures that any spillages are likely to be spread over huge distances, for example, tailings disposed of at sea by Lihir Gold mine in Papua New Guinea were found to

have spread over 60km<sup>2</sup> (Kathryn et al 2018: 15). This has the potential to create conflict with fishermen if, for example, a sedimentary plume were carried beyond a mining company's allocated space and thereby damaging extensive fish stock. Furthermore, it has been shown that access to a clean marine environment is central to Fiji's tourism sector, which remains a substantial contributor to the Fijian GDP. Any risk to Fiji's marine habitat is therefore a direct risk to the Fijian economic welfare.

The first deep sea mining lease was issued to Nautilus in 2011 to mine a site known as Solwara 1 (Kathryn et al 2018: 11). The study conducted by Exeter University and Green Peace highlighted some potentially destructive aspects of the operation. Firstly, deep-sea species only experience low-level noise yet Nautilus plans to have production tools operating on the seafloor 24 hours a day (Binney et al 2016: 14). Studies show that anthropogenic noise can seriously impact upon fish species by masking communications, inducing behavioural changes, and causing damage to hearing (Kathryn et al 2018: 15). Similarly, deep water species are only ever exposed to low-levels of light. Nautilus plans to have flood lights in continuous use which will increase light levels. Though Nautilus has not investigated the impact that increased light levels may have, it is predicted that disorientation and retinal damage in many marine species will result (Kathryn et al 2018: 16). Furthermore, Nautilus has predicted that the use of machinery on the seafloor combined with the introduction of waste water will increase the seabed water temperature by 5.8-11.4°C (Kathryn et al 2018: 16). Unfortunately, "very little is known about the impact of such temperature increases on deep-sea organisms" (Kathryn et al 2018: 16). The study concludes that "deep sea mining will inevitably cause loss of biodiversity" though the extent of such destruction is difficult to assess "given that there have been no large-scale trials" (Kathryn et al 2018: 16). Considering that many of the consequences that will emerge as a result of deep sea mining are still largely unknown, it would be wise for Fiji to withhold the distribution of deep sea mining leases in order to first assess the mining operations of Nautilus in the PNG. Furthermore, the International Sea Bed Authority, which is mandated with governing human activities on the deep sea floor outside of exclusive economic zones, has already issued 27 mineral exploration contracts, which may soon be transformed into mining licenses (Kathryn et al 2018: 1). Fiji has nothing to gain from being at the vanguard of deep-sea mining, but has a lot to lose. It is therefore best for the Fijian government to watch PNG and any future international deep sea operations in order to assess the consequences and thereby implement best practises and mitigate damages within its own deep-sea mining operations.

### ***The Resource Curse***

An interesting and counterintuitive concept within the development discourse is the 'resource curse' theory, also known as the 'paradox of plenty'. This concept, based upon both economic theory and empirical evidence, holds that countries endowed with abundant extractive industries perform less well economically and politically than countries without extractive industries (Otto et al 2006: 240). There is much academic debate regarding the existence of the resource curse. Many scholars point to the negative consequences of extractive industries in Angola, Papua New Guinea, Nigeria and Peru to emphasise the correlation between economic, political, and social instability and reliance on extractive industries (Otto et al 2006: 240). Other scholars voice "reservations about the veracity and pertinence of the data used" (Otto et al 2006: 240) in resource curse literature and thereby

### ***Issues of Mineral Exploration and Mining in Fiji***

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argue that such theories are “not supported by comparative or historical evidence” (John 2010: 7). These scholars often point to Malaysia, Chile and Norway as countries who have successfully managed extractive industry revenues (Otto et al 2006: 14). Whilst the literature is not conclusive as to the existence of the resource curse, it certainly “does not rule out the possibility” (Harford et al 2005: 1), and therefore “it is useful for policymakers to be aware of these trends so that they can respond appropriately” (Natural Resource Governance Institute 2015: 5).

According to the paradox of plenty, mineral wealth has multiple destabilising influences. Firstly, mineral wealth creates “volatility in government revenues” (Harford et al 2005: 1). The unpredictable fluctuation of mineral pricing ensures that governments “often get trapped in boom-bust cycles” (Harford et al 2005: 1) whereby governments spend heavily on long term projects when mineral prices are high only to introduce painful cuts when mineral prices drop. Governments heavily relying upon extractive industry revenues must consistently recognise and make concessions for the possibility of price fluctuations in order to avoid the occurrence of debt crises and revenue declines, the likes of which decimated the Mexican, Nigerian and Venezuelan economies in the 1980’s (Natural Resource Governance Institute 2015: 3). Furthermore, reliance upon the mining sector increases foreign currency holdings, which in turn raises the exchange rate thereby impacting upon domestic export-based manufacturing. This effect is known as “Dutch disease” and it has been known to seriously “undermine the competitiveness of other sectors” of a nation’s economy (Harford et al 2005: 1). An effective monetary policy to combat Dutch disease involves the re-investment of extractive industry revenues into generating non-resource sector growth (Natural Resource Governance Institute 2015: 3). Finally, and highlighted as the most “problematic” issue associated with reliance upon mineral wealth, is its propensity to damage government institutions (John 2010: 5). Heavy reliance upon resource extraction is said to increase the threat of authoritarianism and weaken democracy “by removing incentives to reform, improve infrastructure, or even establish a well-functioning tax bureaucracy” (Harford et al 2005: 1). The Natural Resource Governance Institute argues that “governments are more responsive to their citizens” and more likely to uphold democratic principles when reliant on citizen taxation (2015: 2). However, the large revenues received from natural resources ensure less dependence on levying tax from the population. Proponents of this theory advocate that this anti-democratic tendency can be mitigated by “increasing transparency of revenues” and by strengthening “citizen participation in budgeting” (Natural Resource Governance Institute 2015: 2). The resource curse, whilst not inevitable, has affected many countries and thus the Fijian government should be aware of the policy options available to mitigate the risks associated with reliance upon mineral revenues; specifically, being caught up boom-bust cycles, declining export sectors, and increased risk of authoritarianism.

## **Conclusion**

Ultimately, whilst mining has the potential to decimate a region’s socio-environmental landscape, it also has the potential to lift populations out of poverty and fund socio-environmental initiatives which could drastically improve the standard of living for present and future generations. Mitigating the risks and enhancing the benefits of mining requires a constant balancing between multiple stakeholder interests. The interests of landowners must be balanced against the economic interests of the nation, environmental concerns

must be balanced against investor interests, and the benefits of today's population must be balanced against those of tomorrow. Like all balancing acts there must be flexibility, participation, and compromise, and there is always the potential to get the balance wrong. It is therefore important to adjust the scales where necessary. The prodigious profitability that mining symbolises must not outweigh the vast destructive potential of the industry, therefore, determining policies which govern the balance between the multiple stakeholder interests must always be defined by notions of sustainability, transparency, and inclusive participation.

***Recommendations:***

- ✓ Enhanced landowner participation in the decision making process through adopting principles of free, prior, and fully informed consent.
- ✓ Increase of information regarding mining to be disseminated within communities impacted by mining to enhance transparency.
- ✓ Research is required to determine the way which mataqali mining revenues is being spent and invested in order to determine whether the Future Generation Fund ought to be considered a once-off initiative or a common feature of future fund distributions.
- ✓ The Fijian government currently governs the highly competitive mining industry by distributing licenses on a first-in-first-served basis, with the only criteria being that applicants “have the capability to carry out an agreed upon work program” (United Nations Development Project 2011). It may however be advantageous to grant members of the International Council on Mining and Metals preferential leasing in recognition of the stringent ethical, social, and environmental commitments such companies have pledged (ICCM 2015).
- ✓ Increased minimum wage for miners.
- ✓ Introduction of mining occupational health and safety legislation.
- ✓ Improve the objectivity of the EIA process. For example, establish a tribunal comprised of experts and stakeholder representatives to undertake the EIA report.
- ✓ Reform the current perception of land rehabilitation from the traditional understanding of returning land to its pre-mined state to the goal of the restoration of a functioning ecosystem in line with the Whitehorse Mining Initiative.
- ✓ The Fijian government should not distribute deep sea mining leases until the impact of deep sea mining is revealed in the PNG and other future deep sea mines.
- ✓ As mining becomes a more significant contributor to the national GDP, the Fijian government ought to adopt the necessary fiscal and transparency policies to avoid the consequences of the ‘resource curse’ from materialising.

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