



A LINE IN THE SAND

INVESTIGATING BLACK SAND MINING IN FIJI



ABOUT THIS REPORT

This project took place as a partnership between Jubilee Australia Research Centre and Macquarie University's PACE program along with Caritas Fiji and Fiji Council of Social Services.

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Cover image: Fiddler crabs, Sigatoka © Phil Stewart

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Caritas Fiji is a humanitarian arm of the Catholic Church, however, offering her services to people and communities regardless of religion, cultures, races, gender and ethnicities. Caritas Fiji's work focusses on 3 major areas namely Disaster Management, Social Ecological Justice, and Women Ministry that focusses on women and children issues. Caritas Fiji is a registered non-government organization under the Charitable Act of Fiji and also a member of the Caritas Internationalis consortium.

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My Stand, Beliefs and Title doing this work is Human, Ecological and Indigenous Rights Defender.

I defend Human Dignity, Rights and Responsibilities, while at the same time protect and uphold the due care and Justice that we are obliged to accord each other and with the whole of Creation.

This is because we are intimately and forever connected with all living things, with all human beings and ultimately to God Himself.

I defend the Rights of Indigenous People because this is where I find my unique Role and Responsibilities that helps define my Destiny and Identity.

I defend the Rights of Indigenous People because it has been grossly abused and violated throughout history all over the world in the name of Colonization, Development, Globalization, and Modernization as we also face here in Fiji and the South Pacific.

After all we are all Sons and Daughters of this Land but we all have our special duty to carry out in order to bring about Peace and Harmony.

Vinaka Vakalevu,

TEVITA NAIKASOWALU
HEIR DEFENDER



“

Indigenous communities have the right to give Free, Prior and Informed Consent to development that affects the land and natural resources they depend upon. Whether in the development or operational phase, these projects must be halted until we have established whether community consent has been given.

LUKE FLETCHER

EXECUTIVE DIRECTOR, JUBILEE AUSTRALIA

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EXECUTIVE SUMMARY

Fiji's largest island, Viti Levu, has recently become the site of the first ever black sand mining operation in Fiji, with another in the exploration phase. Black sand mining involves extracting magnetite or the iron ore content from mineral sands through the excavation of the sea floor, beaches or dunes. The process, which often involves extensive dredging of the sea or river floor, can result in devastating environmental impacts, including destruction of habitats for crustaceans, snails and corals, erosion and land subsidence, damages to mangroves and reduction of fish stocks. There is little analysis of the specific environmental impacts of black sand mining available, making it difficult to assess the long-term risks to ecosystems and livelihoods that may result from this kind of mining.

In Ba Province, on the north-west coast of Viti Levu, Australian company Amex Resources Ltd began dredging for magnetite at the mouth of the Ba River in 2019. This is the first black sand mining operation to commence in Fiji. While an exploration licence was granted to Amex Resources Ltd in 2009, and a mining lease in 2012, community members reported they were only made aware of the Environmental Impact Assessment (EIA) in 2017. Community members have also stated that they did not know that mining was to commence, and believed that agreement had been given for exploration only.

While the project is at an early stage, it comes with significant environmental risks and residents of villages surrounding the project are already reporting some early signs of environmental damage. Reports that the company is seeking to expand its mining operations further inland have compounded concerns of local residents who rely on the area's crabs, fish and mangrove resources for their livelihoods.

On the south coast of Viti Levu, the Sigatoka River is also under threat from a black sand mining proposal by Magma Mines Ltd, a Fijian subsidiary of the Australian mining company Dome Gold Mines. The proposal is located near the Sigatoka Sand Dunes, which have been tentatively listed for World Heritage Status. At the date of publication, the project is in its exploration phase, with sonic drilling in 2017 confirming the existence of iron sand deposits. While an EIA was conducted in 2014, the company's plans appear to have evolved with the discovery of new mineral deposits in the area, leaving many environmental questions unanswered. Communities within and nearby the exploration area have voiced their strong opposition to the project, raising concerns about the impacts on their livelihoods, their environment, and on future generations.

There are serious questions about Free, Prior and Informed Consent in each project and a lack of a clear social licence to operate. Evidence from large-scale dredging and onshore sand mining operations overseas highlights the complexity of the possible ecosystem impacts from this work, many of which are still only partly understood. An approach of 'mine first, pay later' could see coastal communities in the project areas losing access to environmental and cultural resources for generations to come.

Jubilee Australia, Caritas Fiji and Fiji Council of Social Services therefore recommend:

- Further development of the black sand mining operations at Ba and Sigatoka should be halted until each community has been fully informed about the project, including potential environmental impacts, and has given Free, Prior and Informed Consent to the project. This should include widespread consent from members across the community, particularly women.
- No mining license should be approved at Sigatoka until a new Environmental Impact Assessment has been carried out that assesses the impacts based on the intended project scope as outlined in the company's recent announcements.
- In Ba, a similar environmental assessment is needed to establish the extent of siltation and fish and crab reduction reported by community members, potential erosion risks, and how the project may impact on the community's resilience to future extreme weather events and flash flooding.
- Free, Prior and Informed Consent (FPIC) is essential to the wellbeing and resilience of communities in the face of climate change, as it enables them to manage their land and resources to mitigate negative impacts and protect resources for future generations. Any future proposed black sand mining project should be subject to stringent environmental assessment, mitigation and monitoring and should not proceed without the FPIC of all affected communities.

The Sigatoka River





WHO IS ME?

I am the Mist that covers the Land,
The Rain that falls like a caressing hand
Between mountains of gold the river I ran
Black and Beauty I am the Sand.

Forest so green with Flowers delight
Trees I give the Air of Life
Rock and steady true with might
The Shark that rides the Ocean's stride.

Is it a Myth or a Mystery
From the Sky on high to the bottom of the Sea
All of Creation is connected within
MY Identity.....the Indigenous Me.

TEVITA NAIKASOWALU

HUMAN, ECOLOGICAL AND INDIGENOUS RIGHTS DEFENDER, FIJI

INTRODUCTION

Fiji is renowned for the natural beauty of its oceans and beaches, which draw tourists from around the world and provide local communities with a source of food and income and a place of cultural and spiritual connection. But in recent years, some of Fiji's beaches have attracted attention for the minerals contained within their black sand. Rich in magnetite, a source of iron ore, these sands have become a drawcard for international mining operators.

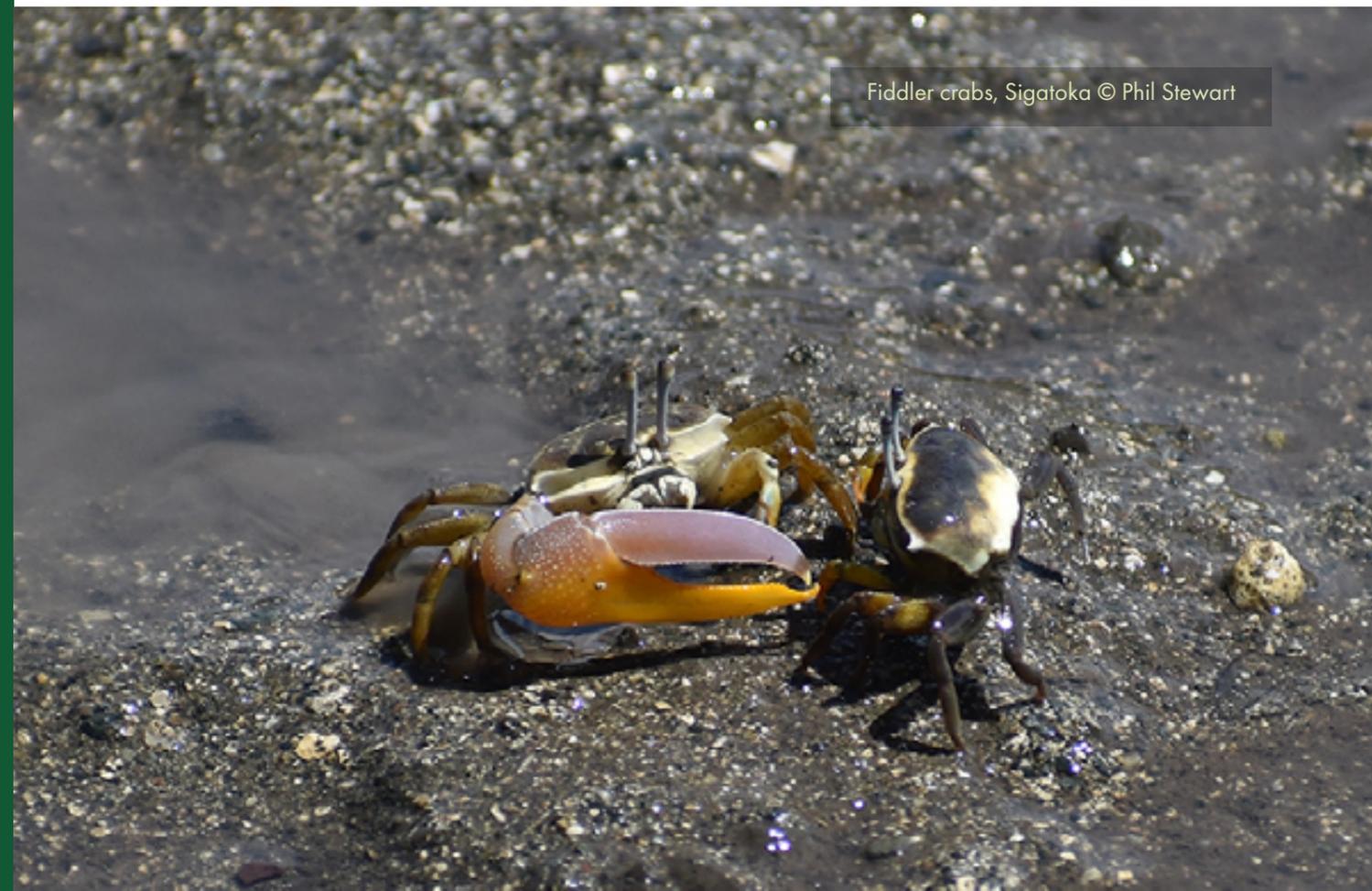
This report explores two locations of black sand mining on Fiji's largest island, Viti Levu – the current project at Ba, which is rumoured to be expanding, and a proposed project at Sigatoka, currently in exploration phase, that could imminently seek a mining licence. The project in Ba, operated by Australian company Amex Resources Limited, commenced in 2019 and communities have begun to observe some concerning signs of potential environmental impacts. The project in Sigatoka, operated by Fijian company Magma Mines Ltd, a subsidiary of Australian company Dome Gold Mines Limited, is yet to commence but has already garnered significant community opposition.

This report details information about each project, and highlights the potential environmental, social and cultural impacts that could arise, and should be further explored. It also discusses community views and evidence of community opposition to these projects.

The report is a collaborative effort between Jubilee Australia Research Centre and students of Macquarie University's PACE Program. Tevita Naikasowalu, a Human, Ecological, Indigenous Rights Defender, worked closely with the authors to share his first hand account of the projects as they stand in Ba and Sigatoka. Mr Naikasowalu, and the Archdiocese of Suva, have been engaged in various conversations with communities impacted by the mining operation at Ba and the threat of mining at Sigatoka over the past years. The report also benefited from valuable input and advice from Caritas Fiji and the Fiji Council of Social Services (FCOSS), whose work in the affected communities has also informed its development.

The research team also drew on accounts from members of affected communities. This included a report from an awareness tour in Ba conducted by the Archdiocese of Suva in 2018 and video footage from Caritas Fiji collected in the community. During 2020, the research team also conducted interviews via Zoom with a male village elder from Votua and Catholic priest from Votua, now resident in Suva; and a focus group discussion with a small group of young men and women from Votua and neighbouring villages.

The report also draws on company annual reports and announcements, news reports and secondary literature. In February and March 2021, Jubilee Australia wrote to Amex Resources Limited and Dome Gold Mines Limited at their Australian headquarters to seek further information about the issues covered in this report, but did not receive a response.



Fiddler crabs, Sigatoka © Phil Stewart

2 BACKGROUND

2.1 Land ownership in Fiji

In Fiji, land is managed through three systems – native (customary) land, freehold land and Crown or state land.¹ More than 80 per cent of the land is customary land, owned by the *iTaukei* Indigenous population in collective groupings according to custom.² Members of a customary landowning unit hold rights over land collectively, but cannot individually sell or lease their land.³ The *iTaukei* Land Trust Board (ILTB) controls and administers land on behalf of the customary landowners and may grant leases or licences over this land, under specific conditions.⁴

Section 30(1) of the 2013 Fijian Constitution states:

All minerals in or under any land or water, are owned by the State, provided however, that the owners of any particular land (whether customary or freehold), or of any particular registered customary fishing rights shall be entitled to receive a fair share of royalties or other money paid to the State in respect of the grant by the State of rights to extract minerals from that land or the seabed in the area of those fishing rights.⁵

Fiji also recognises customary fishing grounds, known as *qoliqoli*. While the State has ownership of Fiji's territorial waters, *iTaukei* groups hold rights to access and fish within their traditional waters.⁶

Customary *iTaukei* worldviews see land and water as more than simply resources, with the concept of *vanua* inextricably and holistically linking land, identity, resources, culture and spirituality. Land is therefore not just a means of sustenance or a source of value or income, but is home to sacred sites and crucial to cultural identity.⁷

2.2 Mining in Fiji

In recent years there has been an upsurge in interest in mining in Fiji. For much of Fiji's history, the mining industry was dominated by the Emperor Gold mine in Vatukoula.⁸ Recently, Fiji has had two significant operating mines: the Vatukoula gold mine (now owned by River Diamonds Plc) and a bauxite mine in Bua Province owned by Australian-based Chinese company Xinfu-Aurum.⁹ In the last decade there has been a significant increase in the issuing of exploration licences – as at March 2021, the Mineral Resources Department reported Fiji had eight active mining leases and 31 exploration licences.¹⁰

Under the Mining Act 1978, the Director of Mining may grant prospecting licences, permits to mine, mining leases and other instruments facilitating mining.¹¹ A Fiji Government report to the UN notes that “Prospecting License holders have a right to progress from prospecting to mining if they have complied with the license conditions and they have proven that a minable resource exists”.¹² The approval of an Environmental Impact Statement or Environmental Management Plan is required before the Director of Mines approves a prospecting licence or a mining lease.¹³ The Government has also stated that the project sponsor and Government should collaborate on a public information and education project about the nature and impact of the project “[f]rom early in the exploration phase”.¹⁴ It notes:

Government is mindful that premature release of information may unduly inflate residents expectations, and will be guided by mining company views on when certain information may appropriately be released. However, the Government of Fiji believes that a regular information flow needs to be established fairly early in the project cycle to avoid misconceptions and unwarranted rumours about potential mine development.¹⁵

Section 11 of the Mining Act 1978 also sets out some areas that are closed to prospecting or mining, including any Fijian village, any land within 30m of an inhabited house or building (except with consent of the owner), and any land used for crops (except with consent of the owner or occupier). If consent is withheld by the owner, the decision can be appealed to the Mining Appeals Board.¹⁶

Revenues and financial benefits from mining in Fiji include royalties and tax revenue, as well as rents paid to customary landowners.¹⁷

2.3 Free, Prior and Informed Consent

Over recent years, the concept of self-determination has become an increasingly prominent issue on the global stage. The Declaration on the Rights of Indigenous Peoples provides that Indigenous peoples have the right to determine priorities for the development or use of their lands and other resources, and requires states to obtain their Free, Prior and Informed Consent (FPIC) prior to approving projects that affect their land.¹⁸ Fiji has not ratified the Declaration, despite advocacy from local civil society.¹⁹

While the Declaration applies to States, the UN Guiding Principles on Business and Human Rights provide that

businesses also have an obligation to respect human rights, avoid infringing on the human rights of others and address adverse human rights impacts with which they are involved.²⁰ The FPIC principle is also embedded in policies of major international institutions including the International Finance Corporation (IFC) Performance Standards.²¹ The International Council on Mining and Metals has also committed its members to “Work to obtain the consent” of Indigenous communities for projects on customary land.²²

While falling far short of the FPIC standard, Fiji's *Environmental Management Act 2007* and regulations require some level of public consultation on mining proposals as part of the Environmental Impact Assessment (EIA) process. For example, the regulations provide that the Department of Environment may “if it considers appropriate” involve the public in scoping the EIA and can require the proponent to hold a scoping meeting, which has to be publicly advertised.²³ The regulations also require the proponent to hold at least one public consultation during the EIA study on the proposal, which must be publicly advertised.²⁴ Once an EIA report has been completed, the Department of Environment is required to make it publicly available, and the proponent is required to conduct at least one public consultation on the review in the area of the project.²⁵



Everything about us is based on beliefs. The sand and stone that we are sitting on is sacred. Even though to a normal eye they may appear naked, but they contain spirits, beliefs, stories, legends, even though you cannot see it, they are there. You are the land. you are the sea. You are the wind, you are the river. What they are, helps you to be the best you can be. Without them we cannot find our full potential and identity.

TEVITA NAIKASOWALU

HUMAN, ECOLOGICAL AND INDIGENOUS RIGHTS DEFENDER, FIJI

MAP OF VITU LEVU, FIJI



3 BLACK SAND MINING

Black sand mining involves extracting magnetite or the iron ore content from mineral sands through the excavation of the sea floor, beaches or dunes. Magnetite is an iron ore naturally contained within black sand, occurring from the erosion of metamorphic and igneous rocks.²⁶ Highly magnetic, magnetite mineral contains high levels of iron and is principally used in steel production.²⁷ Magnetite needs to undergo a second stage of processing when being converted to iron ore, meaning that it is more expensive to produce than its counterparts hematite, goetite and limonite.²⁸ After it has been processed, magnetite is converted into pellets that act as a feedstock for blast furnaces or in direct reduction steel making plants.²⁹

As at March 2021, iron ore was traded at over US\$170 per tonne, however, this price fluctuates significantly depending on market conditions.³⁰ Prices peaked in February 2011 at \$188 and dropped as low as \$41 in December 2014.³¹ As recently as March 2020 it traded at only \$81 a tonne.³² Prices are influenced by demand from China as well as the trading of iron ore derivatives.³³

3.1 Impacts of black sand mining

Black sand mining can have considerable environmental impacts which vary depending on the scale, location and nature of the mining operation. There is limited documentation of the environmental impacts of previous black sand mining operations, making it challenging to assess its medium and long term impacts on ecosystems. Studies on the impacts on onshore black sand mining along the coastline suggest these can include:

- Increased coastal erosion, which can occur through direct removal of the sand, as well as disturbance of the sediment budget (the balance of sediment added to and removed from the shoreline through natural forces). Black sand mining can deprive areas downstream of their usual sand input. This coastal erosion can continue to affect areas decades after the cessation of mining.³⁴
- Land subsidence can also result due to a combination of removal of sand, erosion and groundwater extraction. Groundwater

extraction is often a component of black sand mining operations as the water is used in sand processing.³⁵ Land subsidence leads to flooding, and associated destruction of homes, infrastructure and livelihoods.

- Mining of black sand dunes also disturbs animal and plant habitats and can also result in flooding at high tides, as dunes act as a natural barrier to seawater.³⁶

Black sand mining can also involve dredging sand from the sea floor or riverbed, which carries risks to marine ecosystems. Impacts vary depending on factors such as the type of dredging equipment used, the nature of the surrounding ecosystem and the duration of the dredging activities. Impacts can include:

- Damage to the river or ocean floor where the dredging is taking place, including removal of surfaces that serve as a habitat for fish and invertebrates, and conversion into surfaces that are less habitable.³⁷
- Generation of suspended sediments at the dredge site, as well as creation of a sediment plume that can travel kilometres away from the dredging site. This has the potential to smother marine environments, impacting on invertebrates living on the ocean floor and changing feeding behaviour of fish. It can also reduce light penetration, which in turn can impact on organic processes that the ecosystem relies on.³⁸
- Generation of underwater noise, which may have the potential to impact on fish and aquatic mammal behaviour.³⁹
- Release of harmful or toxic materials, either from the mining on the sea floor or from associated machinery or mining processes.⁴⁰
- Changes to wave height and direction or tidal conditions as a result of changes in the depth and topography of the seabed, causing adverse impacts on habitats.⁴¹

The impacts can be cumulative, and little is known about the long-term impacts that come from lengthy and repeated dredging operations or the cumulative effect of multiple dredging stressors on fish populations.⁴²

Black sand © Teddy

POTENTIAL IMPACTS OF BLACK SAND MINING

Black sand mining involves extracting iron ore from mineral sands by excavating the sea floor, beaches or dunes. Environmental impacts vary depending on the scale, location and nature of the project, but studies suggest they can include

ONSHORE



INCREASED COASTAL EROSION



LAND SUBSIDENCE LEADING TO FLOODING



ANIMAL HABITAT DISTURBANCE



PLANT HABITAT DISTURBANCE



FLOODING AT HIGH TIDES

OFFSHORE



DAMAGE TO RIVER OR OCEAN FLOOR



NOISE POLLUTION IMPACTING UNDERWATER LIFE



RELEASE OF TOXIC MATERIALS



CHANGES TO WAVE HEIGHT AND DIRECTION

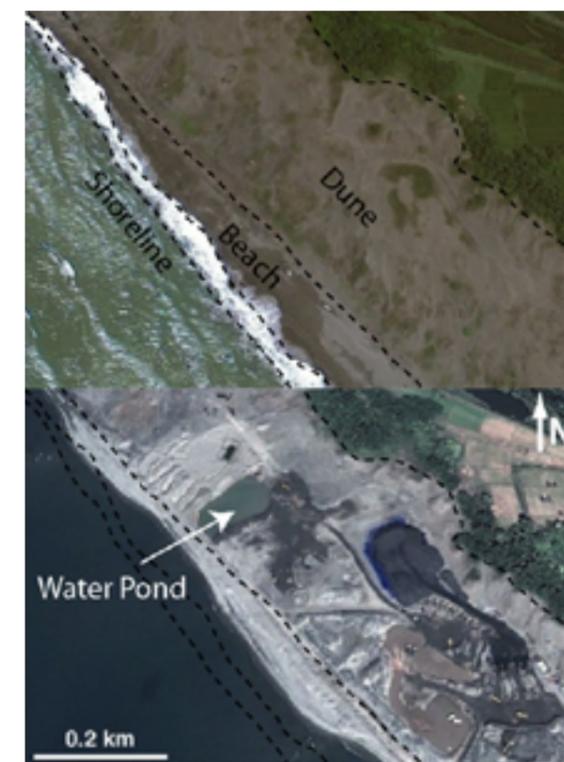


CHANGES TO TIDAL CONDITIONS

3.2 Case Study – The Philippines

While black sand mining is new to Fiji, it is well established in the Philippines. The experience of communities living alongside sand mining operations in the Philippines can therefore illustrate some of the impacts that can arise from coastal sand mining activities.

Black sand mining is well established in the Philippines, occurring both legally and illegally, with devastating impacts. Villages along the coastline of Gonzaga and Aparri (in the northern tip of Luzon) were host to a black sand mining operation in the early 2010s. The mining activities ultimately led to significant subsidence of the coast and the submersion of around 100 houses.⁴³ An Environmental Investigation Mission (EIM) concluded that the mining operation “resulted in increased vulnerability to and actual erosion through the destruction of sand dunes and the disruption of the coastal sediment budget”.⁴⁴ Gonzaga, in particular, was heavily reliant on rice farming and fishing, and mining here led to an overflow of salt water into rice farms and the sedimentation of coral reefs.⁴⁵ The environmental and social impacts of the resource extraction also led to local conflicts.⁴⁶ An Environmental and Social Risk Appraisal noted that 7 out of 9 villages they studied were being affected by the excessive amount of salt water and the chemical contamination of fresh water.⁴⁷ The EIM in this area concluded that the freshwater mollusk had decreased significantly in supply with the advent of black sand mining in the area.⁴⁸



Optical images displaying the coastal landscape before (left) and after black sand mining (right) on the Luzon coast, Philippines. The mining activities are located within the sand dunes.⁴⁹

4 BA IRONSANDS PROJECT

The mouth of the Ba River in Fiji's Ba province is currently the site of the first black sand mining project in Fiji. The project, which involves extracting iron ore through excavation of the seabed, has the potential to cause drastic damage to the environment. It also affects the livelihoods of local communities, who depend on the river as a source of food and income.

There are serious concerns that local communities have not been properly informed of the mining activities and their potential consequences, as well as not being properly involved in the decision making process. These concerns are enhanced by the fact that the company is reportedly proposing to extend the project further inland.

4.1 Location of the project

The town of Ba and the Ba River are located in Ba Province on the north-west coast of Viti Levu, Fiji's largest island. Ba Province is Fiji's largest province, with a population of 247,708 recorded in the 2017 Census.⁵⁰ Over 31 per cent of the population of Ba province live in rural areas.⁵¹

The Ba River is located in the north-west of Ba province, and is approximately 28 kilometres long, with a maximum water depth of 8 metres.⁵² A significant river delta and natural floodplain, the Ba river delta is home to approximately 3,714 hectares of mangroves.⁵³ The delta is also home to a highly diverse range of fish and molluscs.⁵⁴



The river system in Ba is the feeding, the hospital, the nursery, the sanctuary of all living organisms that either go up the river or into the deep sea.²²⁸

TEVITA NAIKOSOWALU

HUMAN, ECOLOGICAL AND INDIGENOUS RIGHTS DEFENDER

The town of Ba, which is the main business centre of the Ba district, and one of the main industrial centres of Fiji, is located on the western side of the river delta, approximately 8km inland from the coast.⁵⁵ A sugar refinery is located near the town of Ba, and the majority of agricultural land in the area is used to grow sugar cane.⁵⁶ The town was severely affected by Cyclone Winston in 2016, with many buildings being damaged.⁵⁷

Villages located close to the ironsands project include Navonu and Natanuku (both within 1km of the project area); Votua; Natutu; Nakavika; Vatuvonu; Koroqaqa, and Vatutavui. Votua is a large village and home to around 890 people.⁵⁸



Kai (freshwater mussels) © Rafael Ben-Ari

The villagers at Ba are mostly fishermen and fisherwomen, while the members of Indian population are often sugar cane farmers. A major source of income for the local population, particularly women, is selling *kai waidranu* (river mussels or freshwater clams). *Kai* also provide a source of protein on a subsistence basis.⁵⁹ While women collect *kai* and land crabs, men often fish in the river or go out to sea to catch crabs, shrimp, mullet and other types of fish.⁶⁰ Many families have their own small plots beside the river where they grow root crops like cassava, however these are susceptible to being wiped out in times of heavy rain and flooding.

4.2 About the project

The "Mba Delta Ironsands Project" is run by Australian company Amex Resources Ltd.⁶¹ The project covers more than 120 km² at the mouth of the Ba River and involves digging up black sand from the seabed and extracting iron ore. The project is expected to last for a minimum of 18 years.⁶²

The project proposes to dredge 220 million tonnes of sand, which has an average grade of 10.9 per cent iron from the Ba River Delta, and from this amount to extract approximately seven per cent that contains rich deposits of magnetite.⁶³ The remaining 93 per cent of the dredged amount (approximately 204 million tonnes) is intended to be redeposited back into the tidal flat.⁶⁴ Processed sand will be loaded onto a barge and transported to Lautoka Port.⁶⁵ The company has entered into a 45 year lease for the port with Fiji Ports Corporation Limited, reflecting "the potential project mine life, based on the current indicated resource of 220 million tonnes and the additional exploration target, which extends both inland and seaward".⁶⁶

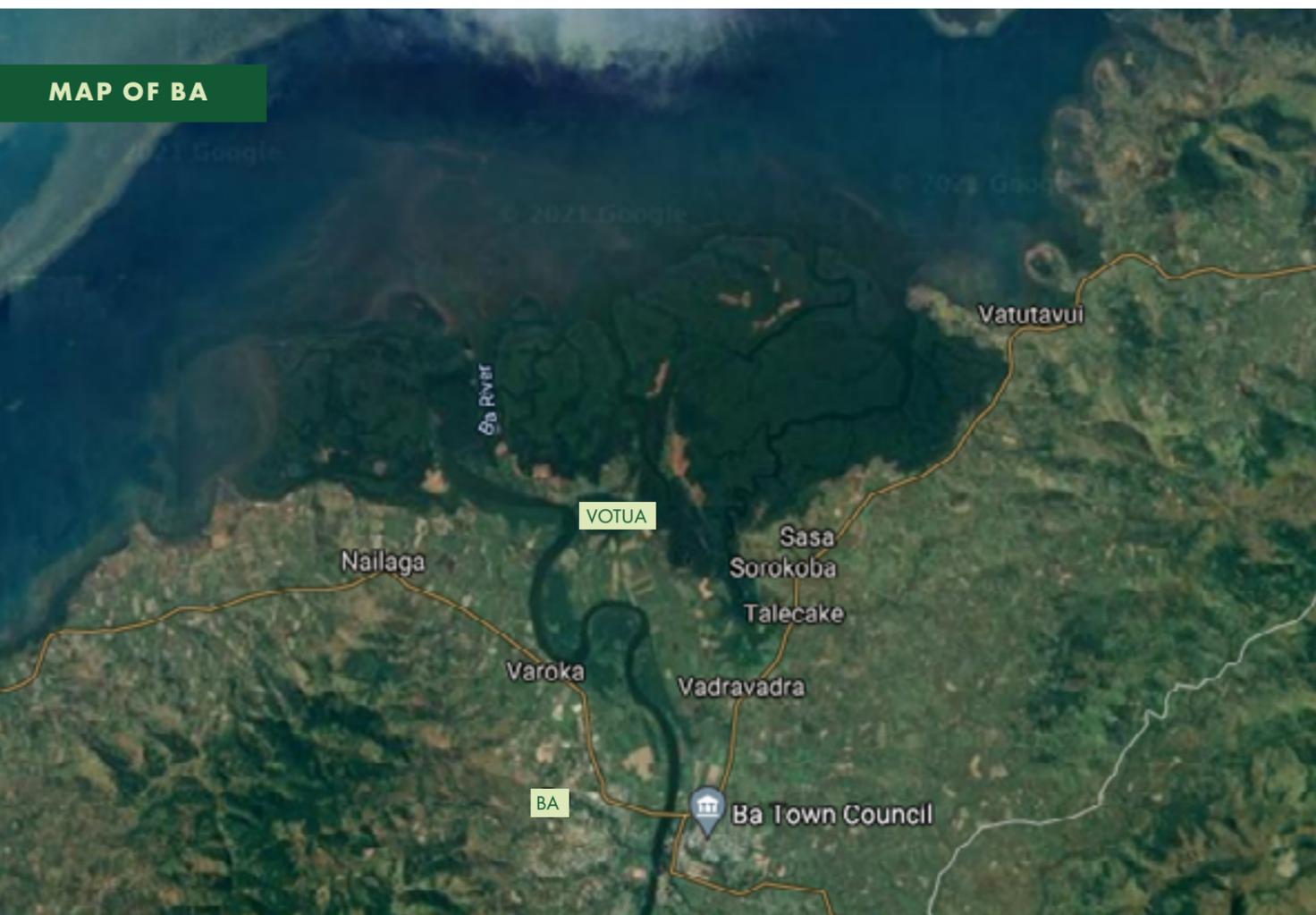
The iron ore mineralisation of the Ba Delta is described

as a "vanadiferous titanomagnetite ironsand, which has essentially the same chemical characteristics as Bluescope Steel's ironsand on the North Island of New Zealand".⁶⁷ The deposit, which is approximately 15 kilometres long by up to four kilometres wide, is located on the tidal and sub-tidal flats of the delta.⁶⁸ It is described as "ideally suited to extraction by conventional dredging methods", which is planned at a rate of "12 million tonnes annually over the next 20 years".⁶⁹

Amex Resources was granted a Special Prospecting Licence in February 2009.⁷⁰ In August 2011, an Environmental Impact Assessment was prepared for Amex Resources by Envi-Green Pacific Consultancy Ltd (Greenpac), a Fiji registered environmental company.⁷¹ The EIA claimed that "The discovery of iron sand with rich deposit of titanomagnetite at Ba River Delta is a socio-cultural and economic blessing for the people of Ba Province."⁷² It highlighted several environmental risks and laid out a number of mitigation measures, concluding that "[w]ith implementation of the mitigation and management options proposed, including an Environmental Management Plan, it is considered that the environmental impacts of the project will be minimised".⁷³

The project was granted a Special Mining Lease commencing on 12 June 2012 and ending on 11 June 2033. According to the Special Mining Lease, the yearly subsurface rent to be paid by Amex Resources is \$47,240.⁷⁴ Amex Resources Ltd contracted Chinese port developer CCC First Harbour Consultants Company Limited to build the project facility at Lautoka Port, which began in early February 2017. Works were completed in 2019.⁷⁵ Mining began in or around March 2019, with sand extracted from the Ba river delta and processed, then taken by barge to Lautoka for further processing before being shipped to China.⁷⁶

MAP OF BA



4.3 About the company

The operating company for the project at Ba, Amex Resources Ltd, is an Australian mineral resources development company founded in 1999, and based in West Perth.⁷⁷ The company is focused on iron ore properties in Australia and Fiji, with the Ba ironsands project described as the company's "core project".⁷⁸

In 2017, Amex Resources was acquired for AUD\$54 million by Chinese-owned investment company Waratah International (Asia) Ltd, which was incorporated in the British Virgin Islands in 2012.⁷⁹

The Waratah Group describes itself as "a large multinational enterprise with environmental-friendly construction materials as its core business".⁸⁰ "High-quality mining" is listed as one of the "five major industries" which Waratah is involved in, along with real estate, education, agriculture, and financial services. The website also claims that the Waratah Group has "always been fully supported by the Australian Federal Government".⁸¹ In the past, the group has also sponsored fundraising events for the Liberal Party featuring high-ranking party members as speakers, including Scott Morrison, Julie Bishop and Michaelia Cash.⁸²

4.4 Threats and impacts

“Where I grew up, I just love the crabs, the fish. It's my home, my island paradise. All my family live there as well.

YOUNG WOMAN
NATUTU VILLAGE⁸³

4.4.1 Impacts on crabs and fish

As outlined in section 3.1, above, black sand mining has the potential to harm crustaceans, snails and other benthic

fauna as well as the fish and aquatic mammals that depend upon them.

The EIA considered some of these impacts, noting the possibility of siltation during both the construction and operational phases of the project, but concluding that the adverse impacts from the sediment plume and sediment re-suspension would be minimal due to the type of dredging machine used.⁸⁴ It did, however, warn that "the constant long-term effect of dredging and iron sand extraction can disturb the benthic communities and its habitat" and that corals may also be affected.⁸⁵

Community members and volunteers working in the community have described some changes in the marine environment since the sand mining works began. Local community members have reported that coral reefs and seagrass have been buried under waste and mud, and that the corals are beginning to die and turn white.⁸⁶ Locals reported seeing mountains of sand underneath the river water and that the seafloor is transformed into a thick, brown, unsettled dead substance.⁸⁷ Locals have also noted that there has been a substantial reduction in the number of dolphins, sharks and fish in the sea.⁸⁸ However, it is difficult to quantify the reduction in marine life due to the absence of baseline data prior to the beginning of the project. Community members have also reported changes in crab behaviour, with one young woman reporting that women in Natutu village were seeing larger crabs appearing closer to the shoreline, when previously they would have to dive for larger crabs. She expressed concern that the mining operations were leading crabs to relocate.⁸⁹ Other community members have observed that they are now experiencing a steady decline in the number of crabs they are able to catch and a reduction in *kai* (river mussels). Prior to the mining, women were able to go down to the river and catch and sell a sufficient amount of crabs within a few hours.⁹⁰ However, villagers now claim that it takes almost a full day instead of a couple of minutes to yield crabs. This impacts most heavily on women, who traditionally rely on catching crabs and *kai* for income.

“

The women used to go down and only take them a couple of minutes or hours, come back and sell land crab. Now takes almost a day and is getting less and less now. Even men folks to go fishing – it used to take a few hours, it now takes a day and a night - Maybe one day or one day and a night. It's getting difficult now for us.

ELDER
VOTUA VILLAGE

“The women used to go down and only take them a couple of minutes or hours, come back and sell land crab. Now takes almost a day and is getting less and less now. Even men folks to go fishing – it used to take a few hours, it now takes a day and a night - Maybe one day or one day and a night. It's getting difficult now for us.

ELDER
VOTUA VILLAGE⁹¹

Reductions in fish numbers have also been observed. A local member of the youth emphasised the reliance of the village upon the ability to fish. He stated that he was able to receive an education as a result of his family income from crabs and fish.⁹² The reduction in fish, prawns and crabs also means these survival skills cannot be passed on to children, severing an important cultural tie between generations.⁹³

“Before the mining, there was plenty of fish. Since the mining began, there is less fish now, and less money for the family.

YOUNG MAN
NATUTU VILLAGE⁹⁴

The reduction in the number of fish means that fishermen must travel further out to sea which is more expensive, unsafe and requires additional fuel. This puts further strain on the livelihoods of the local residents. One villager reported that local fishermen are unable to support the cost of fuel with the reduced amount of fish they are catching and are opting to sell their boats and nets.⁹⁵

“We've seen the fish are no more there now, it's getting less and less every day, people are spending more hours to go out to catch and put things on the table, daily. That is something that for us, we really need this. We need to have this stopped so that less damage can be done, otherwise by 20 years' time, everything will be gone, we'll have nothing with us.

ELDER
VOTUA VILLAGE⁹⁶

A Catholic priest originally from Votua reported that one of the reasons why fishermen are required to travel further out is that the company has placed markers in the water, which have blocked off part of the *qoliqoli* area, requiring fishermen to drive around. The man reported that the company has security patrols ensuring that fishermen do not cross the markers.⁹⁷ The requirement to travel further reduces fishermen's profits as their fuel expenses increase.

4.4.2 Impacts on mangroves

The EIA for the Ba Ironsands project highlighted that the project posed risks to mangroves:

“There will be an anticipated shift in the morphology of the coastal fringes, in this case the coastal fringes of mangroves where scouring and erosional processes will take place once dredging and extraction works move closer to its periphery induced by waves and tidal movements.⁹⁸

Villagers have reported that since the project began, the mangrove forests have been damaged and are dying out, potentially a result of the constant dumping of sand back onto the sides of the river.⁹⁹ Mangroves are vital for the sustenance of coastal fisheries and local communities who utilise mangroves for medicines, construction wood and other products.¹⁰⁰

4.4.3 Claims of flooding reduction

The EIA cited an earlier study on the impact of dredging on flooding in the Ba River Delta, which found that dredging the river mouth may lead to a small reduction in water levels of the river.¹⁰¹ However, it is not clear whether the types of dredging modelled in this earlier study match the proposed model in the Ba Ironsands project, where the primary purpose of dredging is extraction of magnetite, not deepening of the river channel. It is therefore unclear from the EIA whether the project will in fact reduce flooding for communities in the Ba River Delta. With Fiji facing sea level rise and climate-induced extreme weather events, flood risks are projected to increase in the Ba river delta, making communities increasingly vulnerable.¹⁰² It is therefore essential that any development activity support community resilience and not compound communities' vulnerability.

Community accounts suggest that flooding continues. Two interviewees mentioned erosion along the river and one observed that chunks of land have been falling into the sea (however, this may have been occurring before the mining commenced).¹⁰³ One of the interviewees noted that flooding has not lessened since the project began and has in fact worsened with the impacts of recent Tropical Cyclones Yasa and Ana.¹⁰⁴

“I am concerned about young children and for future generations, for them to have the same opportunity to live as their parents did before all this mine began. That is my greatest fear.

YOUNG PERSON
VOTUA VILLAGE¹⁰⁵

4.4.4 Other environmental risks

The EIA noted some significant potential project risks to be managed as part of the project's environmental and safety management plans. These included:

- Risks of oil spillage and contamination of the Ba River Delta in a “worst-case scenario” if the dredging barge were to be submerged.¹⁰⁶
- Fuel and oil spillages from transportation barges, or collisions and accidents involving barges, in sea storms.¹⁰⁷
- Risks to human health from poor waste management at the project site.¹⁰⁸

4.4.5 Cultural and social impacts

“ To a normal eye, sand and stone may appear naked, but they contain spirits, beliefs, stories, legends, even though you cannot see it, they are there.

TEVITA NAIKASOWALU¹⁰⁹

The environmental impacts of the ironsands project also threaten the cultural connections that Ba communities have with their land. The people of Ba have a distinctive verbal and visual culture, generating art forms, weaving and painting and using resources from the land. For Fijians in Ba, there is a duty to protect their identity and heritage for future generations and thus the project's proposed expansion could cause further division within kinship structures.¹¹⁰ While the proposed project expansion is unclear, any proposals for sand mining on land as part of this expansion have the potential to place strain on an already stressed environment and population.

The mining project has also caused division in the communities, as community members have indicated not everyone in the community was informed about or consented to the project (see below).¹¹¹ Some young people in the village have expressed concern about the project and its potential impacts, and have voiced

opposition to the project.¹¹² This division has larger social impacts for the community, as relationship, kinship and blood ties are central to community wellbeing.

4.5 Free, Prior and Informed Consent

The 2011 EIA records the results of discussions with villagers from Votua and Nawaqarua. It appears that these two villages were consulted as the EIA records that these are the traditional *i-qoliqoli* rights owners.¹¹³ The EIA notes that the other villages located on either side of the Ba River, Koroqaqa and Natutu, also use the *qoliqoli* for subsistence and commercial livelihood but does not discuss responses from these villages.¹¹⁴

The EIA notes concerns raised by villagers, including:

- The need for just and fair compensation, paid to the *qoliqoli* owners (including a request that the *qoliqoli* owners receive 30% of net profits)
- The need for the company to restore any areas destroyed to their original state
- Concern about lack of access to fishing grounds
- Requests for housing, education and rights over buildings constructed
- Requests for the Votua community to have access to employment opportunities, transportation for workers
- Formal inclusion of the community in lease or joint venture arrangements.¹¹⁵

The EIA also noted that questionnaires were “randomly given to the major stakeholders living within the Ba town boundary”.¹¹⁶ Only 30 questionnaires were distributed (all 30 were completed and returned). The result of this survey was 53.33 per cent in favour of the project. Tellingly, no responses were against the proposed project, and 46.6 per cent were not sure.¹¹⁷ In Fijian culture where people or communities can struggle to voice dissent (especially to outsiders), this potentially speaks strongly about communities' hesitation and confusion regarding the project and its potential impacts. The survey sample is small considering the overall population – around 15,000 people in Ba Town.¹¹⁸

In June 2018, the Archdiocese of Suva conducted an awareness tour in the three villages of Votua, Nawaqarua and Natutu regarding the ironsands project.¹¹⁹ The awareness tour documented the following concerns from community members:

- Little knowledge and awareness-raising had been done by Amex Resources to highlight the danger and risk of black sand mining to the people of Votua and neighbouring villages.
- The Chiefs had reportedly signed the Exploration Agreement Document with the understanding that only exploration would be carried out. This was documented by the *Roko Veivuke* (Assistant District Officer), Ba with the *qoliqoli* owners' request.
- Only one of the three village heads had some knowledge of mining and he was also involved in the agreement.
- The consultation was not done in the village setting but took place in the Ba Provincial office whereby only a few people were present from Votua village.
- The EIA was not provided to the communities. Many of the villagers did not know what an EIA was. The EIA was only available in English, which many community members do not speak.
- The villagers admitted the fact that there is division in the village and that several villagers have no knowledge of the mining project impacts in regard to their daily living.¹²⁰

Fiji's Environmental Management Act requires that the project proponent (in this case, Amex Resources) hold at least one public consultation during the EIA development and another for review of the EIA, and that the Department of Environment must make the EIA available “at appropriate locations” for inspection by the public (see s 2.3 above).

A community leader interviewed by Jubilee Australia has indicated that consultations were undertaken in English and that members of the community did not fully understand what was discussed:

“ There was a consultation done, the environment impact assessment - that's the consultation they are taking about - everything was done in English, leaving out the people of Votua who don't understand what's been mentioned. None of us understand all that, the words are so technical. For us, that's unfair, it's not fair. Everyone should be consulted and understand what's going to happen. But we don't, we don't fully understand. The other thing, whatever agreement been done, only a few, especially the Chiefs. Only the three chiefs who did the signing without even realising what was in the document, because it's in English, no one advised them, no one advised them in Fijian, what they are signing.¹²¹

Tevita Naikasowalu has also indicated that the community leaders were under the impression that they were signing for a prospecting licence, which would allow the company to scope the land, not that their signature would be sufficient to grant a mining lease.¹²² This is echoed in community video interviews undertaken by Caritas Fiji, in which one community member indicated they had been informed that exploration would be undertaken to assess if there were minerals in their fishing grounds, but there was no clear understanding that extraction would take place.¹²³ A Catholic priest originally from Votua indicated that many community members only learned of the project once work started:

“ [M]ost of us only came to know when we saw these ships crossing the front of these villages. Then people started calling each other that they saw these large ships crossing. Because our village is the last village towards the mouth of the Ba river where the work is ongoing at the moment. So when people started seeing that and they called us ... so I started making my visits down. But already the licence had been granted.¹²⁴



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ELDER
VOTUA VILLAGE



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CATHOLIC PRIEST
VOTUA VILLAGE

In August 2020, a community education event was convened at Votua village as part of the Catholic Church's "Season of Creation". The event included opportunities for the community to share their stories and an ecumenical service, held beside the river. At the service, villagers came together to apologise to and reconcile with the Vanua for damage caused by the mining.

4.6 Current status and proposed expansion

The project delivered its first shipment of 28,000 tonnes of iron ore to China in late August 2019, with the second in November 2019.¹²⁵

The port facility laid off 107 workers in February 2020 due to financial difficulties, which were possibly linked to the COVID-19 pandemic.¹²⁶ A worker reported that they were provided with 30 days notice plus one week's additional pay and paid-out leave.¹²⁷ Community members had previously expressed disappointment that skilled work opportunities had gone to people outside the village, while jobs for villagers were generally unskilled (for example, work as security guards).¹²⁸

There are also rumours that the ironsands project will be expanding inland, but the community has little information. The community elder interviewed from Votua stated that in mid 2020, three chiefs from Votua were asked to sign documents regarding the proposed expansion of the project at Ba. He stated that this

occurred during Covid-19 restrictions, when people were not allowed to gather in groups of more than 20 people.¹²⁹ Since then, one of the chiefs has passed away.

The elder indicated he was not made aware of the details of the agreement, including the location of the exploration or mining, when it would commence, the potential impacts of the project, whether the project will take over the village, whether they will be required to be relocated, or any other specific details regarding the project that would be required before the community could give its free, prior and informed consent.¹³⁰

“ When it's going to move inland, the question would be where would we go? Because if we are going to be moved somewhere else, we need to find ways to put food on the table, because our livelihoods will be badly affected, because we rely so much on this fishing ground, we are the people of the sea, we depend on the sea. And if we move inland, we don't have anything else with us. Maybe we rely on God for help. That's the sad part of it. We live in a state where we just don't really know what to do.¹³¹

A Catholic priest originally from Votua indicated that his father was part of a meeting with the company in 2019 about a potential expansion of the project, but that the community members at that meeting informed the company they did not want an expansion of the project.¹³²

“

When it's going to move inland, the question would be where would we go? Because if we are going to be moved somewhere else, we need to find ways to put food on the table, because our livelihoods will be badly affected, because we rely so much on this fishing ground, **we are the people of the sea**, we depend on the sea.

And if we move inland, we don't have anything else with us. Maybe we rely on God for help. That's the sad part of it. We live in a state where we just don't really know what to do.

ELDER
VOTUA VILLAGEI

Amex Resources' black sand processing barge, Ba © Caritas Fiji



5 SIGATOKA IRON SANDS PROJECT

The mouth of the Sigatoka River on the south coast of Fiji's Viti Levu Island is currently under exploration for another black sand mining project. The proponent for this project is Fijian company Magma Mines Ltd, a wholly-owned subsidiary of Australian company Dome Gold Mines Limited. The project, which involves extracting magnetite to be made into iron ore, has the potential to cause widespread environmental damage and to place the livelihoods of locals under threat due to their dependence on the estuary for food and income.

While the project at Ba is already in operation, at Sigatoka, the project is currently only at an exploration stage. However, there is a risk that Magma Mines Ltd could be granted a mining licence at any moment, potentially threatening lands and fishing areas that are not only the source of communities' livelihoods, but also an important food bowl and the location of a tentatively listed World Heritage site.

5.1 Location of the project

The Sigatoka river area lies on the south coast of Viti Levu, around 80km south of Nadi and 120km west of Suva, Fiji's capital.¹³³ The exploration area (known as SPL1495) covers over 2,500 hectares and encompasses plains at the mouth of the Sigatoka River, the river itself and an offshore area.¹³⁴

The project proposes to "mine for magnetite sand from the lower river mouth river bed of the Sigatoka River up to

the village of Vunavutu located on the west river bank".¹³⁵ Communities that lie within the exploration area include the villages of Kulukulu, Vunavutu, Nasama, Volivoli and Yadua. In addition, Koroua Island (which is owned by villagers at Vunavutu) and a number of settlements on the eastern side of the Sigatoka River will also be affected. The area for prospective mining lies directly where the community farm, fish and live.¹³⁶

The population size of the Sigatoka ward is approximately 10,500 people, of whom around 7,500 live in Sigatoka town, north of the project site.¹³⁷ The surrounding Sigatoka Valley is known as the "salad bowl" of Fiji due to its fertile soil and high rates of food production.¹³⁸ Within the project area, communities live off the river, sea and the land of the Sigatoka valley area. As well as growing cash and food crops, locals use the river to fish as well as to catch crabs and collect river mussels.¹³⁹ The small town of Kulukulu hosts a primary school, churches and farmlands.

Tourism is also significant in Sigatoka, with its strategic location at the start of Fiji's Coral Coast. There are a wide variety of hotels and other accommodation for tourists in the Sigatoka corridor along the Coral coast, from Nadi to Suva which create jobs for locals in the tourist sector.

The Sigatoka Sand Dunes National Park is located within the Special Prospecting Licence area, west of the mouth of the Sigatoka river, with the dune system covering an area of 650 hectares.¹⁴⁰ Described as "one of Fiji's natural highlights",¹⁴¹ the dunes were designated Fiji's first National Park in 1989 and were tentatively listed for World Heritage Status in 1999 by the Government of Fiji.¹⁴²



5.2 About the project

5.2.1 Proposed mining activities

The Sigatoka Iron Sands Project, described by Dome Gold Mines as its "flagship" project and "widely recognised as the best magnetite bearing sand deposit in Fiji", is at an exploration stage.¹⁴³ An EIA was completed in 2014 by Corerega Environmental Consultants.¹⁴⁴ In October 2015, the Fiji Department of Environment approved the project's EIA and Dome indicated it "now proposes to move as quickly as possible to finalise and submit an application for a Mining Licence at Sigatoka."¹⁴⁵ While there is as yet no mining lease, information on proposed mining activities is available from company statements and the EIA.

The 2014 EIA outlined that the development proposal was for dredging on the Sigatoka river and land mining on Koroua Island.¹⁴⁶ The dredging proposal involved dredging sand from the Sigatoka river and transporting it to an iron ore concentrator that would separate the ore from the total dredge spoils.¹⁴⁷ The processor would either be land-based, floating or a combination of the two.¹⁴⁸ The dredging area would run from 200m upstream of the narrow river mouth to 1km downstream of the Sigatoka bridge.¹⁴⁹ Project facilities would also be built to stockpile ore, dredge spoils and other material – at the time of the EIA, these were proposed to be built on the left-hand bank of the Sigatoka river, just downstream of Nayawa village. The EIA did not provide detail of the land mining proposal on Koroua.

Dome Gold Mines subsequently commissioned a pre-feasibility study looking at dredging of the riverbed and

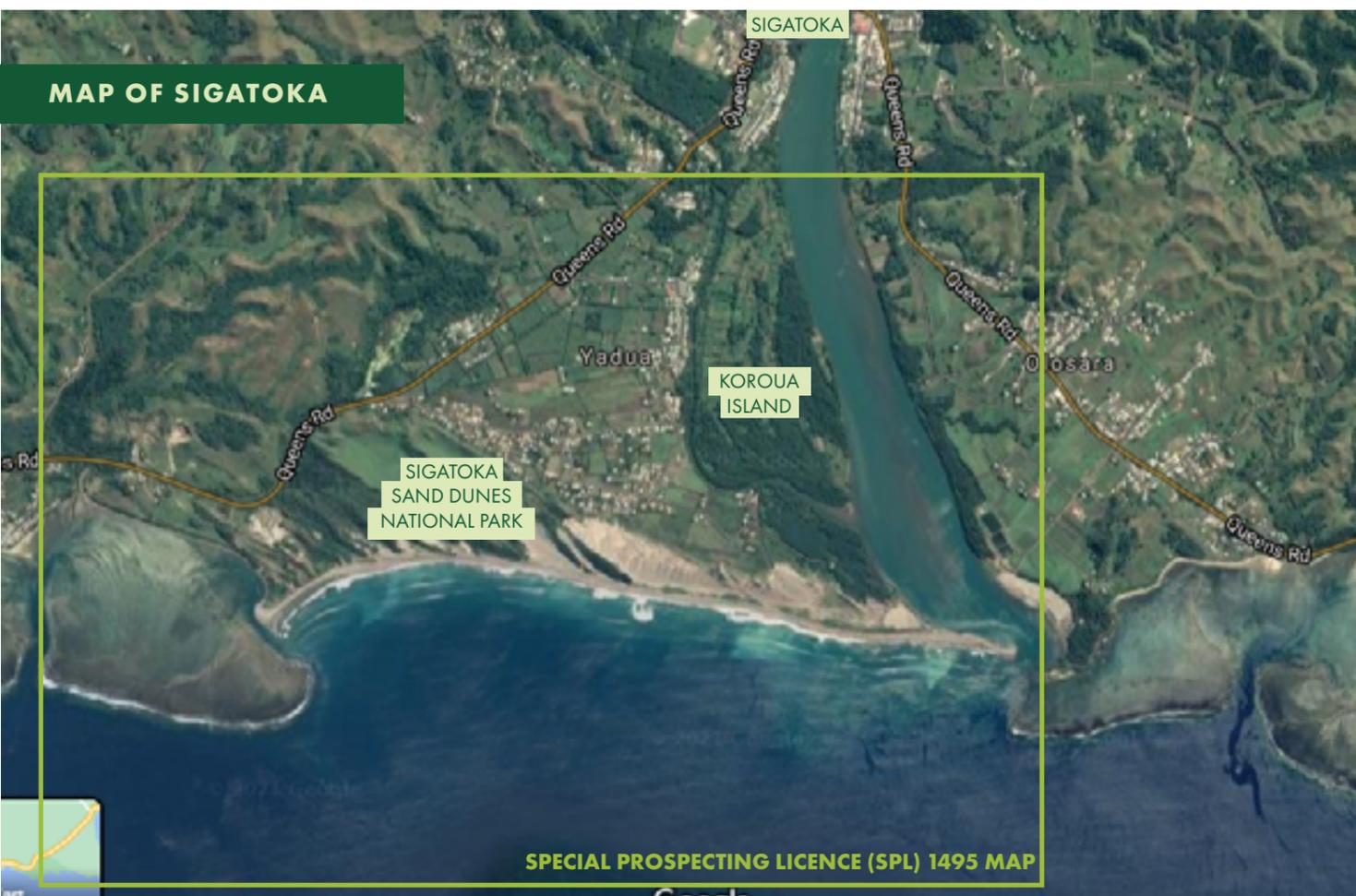
"nearby dunal deposits", but it is unclear whether those dunal deposits are on Koroua Island, Kulukulu or another location.¹⁵⁰

A number of company documents refer to opportunities to exploit sand and gravel deposits, which could be sold locally within Fiji (for example, for cement manufacturing) or exported (for example, for land reclamation projects) to generate higher profit margins.¹⁵¹ Dome has also cited lower wages in Fiji as commercially advantageous, and has referenced the Fijian government's desire to dredge the river as another opportunity.¹⁵²

"Dredging the river for flood mitigation purposes is a high priority for the Fijian Government and represents a rapid development path for us, with low entry barriers and the generation of multiple products for sale"

DOME GOLD MINES ASX ANNOUNCEMENT, MARCH 2015¹⁵³

A 2015 estimate of the project's net present value, based on the pre-feasibility study, was US\$236.9 million. As at November 2020, the company has provided a Joint Ore Reserves Committee (JORC) resource estimate of 189.3 million tonnes of mineral resources.¹⁵⁴ The company initially estimated that the mining operation would have an operating life "in excess of ten years".¹⁵⁵ Recent statements indicated that the resources in the Kulukulu area alone would be "sufficient for the first six or seven years of mining", suggesting the company may be considering a longer timeframe for the project.¹⁵⁶



5.2.2 Exploration activities undertaken to date

To date, the company has undertaken various exploration activities including sonic drilling in the river mouth, Korua Island and the Kulukulu area.¹⁵⁷ During 2013, the company built a bridge at Vunavutu village to gain access for the sonic drill rig to Koroua Island.¹⁵⁸ It appears that the bridge may have been seen as a benefit to the community. The EIA states that “while Magma would have preferred to construct the crossing outside the village, it was the clear wish of the village, who are the principal landowners at Koroua Island, that the crossing be constructed in the village as a village amenity”.¹⁵⁹ The EIA noted that the company would retain the right to use the bridge during exploration, but agreed to make a separate crossing for any operational work.¹⁶⁰ A study undertaken in the area in 2017 reported an interview with a participant who stated that when the company offered to build the bridge, villagers believed it was for their benefit and only later learned it was so the company could conduct exploration on Koroua Island.¹⁶¹

In 2016-17, China Railway First Group commenced flood mitigation dredging works in the Sigatoka river mouth.¹⁶² The dredging works and associated dumping of silt raised concerns about damage to vegetation and crab stocks along the riverbank.¹⁶³ Statements by government officials at the time indicated that this dredging work is separate from Magma Mines exploration work.¹⁶⁴

5.3 About the proponent

The proponent at Sigatoka, Magma Mines Ltd, is a wholly owned Fijian subsidiary of Australian company, Dome Gold Mines Ltd.¹⁶⁵

Dome Gold Mines Ltd is an Australian public company limited by shares that was registered in July 2011 and ASX listed in 2013.¹⁶⁶ The company describes itself as “an emerging iron sand, copper and gold exploration and development company focused on locating and developing significant mineral discoveries in Fiji”.¹⁶⁷ Through its wholly owned Fijian subsidiaries, Dome Mines Ltd and Magma Mines Ltd, Dome Gold Mines Ltd holds three Special Prospecting Licences in Fiji – the Sigatoka Iron Sand Project (SPL1495), Ono Island Project (SPL1451) and the Nadrau Project (SPL1452).¹⁶⁸ The total area of the three tenements is 38,763 hectares, and the Sigatoka project is their most advanced to date.¹⁶⁹ After reaching a peak of 0.49c in December 2015, Dome shares have consistently traded between 14-23c with a current market cap of just over \$54 million.¹⁷⁰ However, stock prices have fallen 36% over the last five years, with 22% occurring in 2019-20.¹⁷¹ Its top five shareholders are institutional investors based in Hong Kong, Japan, British Virgin Islands and Australia.¹⁷²

If Dome Gold Mines Ltd concludes that mining is viable, IHC Robbins, a wholly owned subsidiary of Royal IHC of the Netherlands, will assume the role of engineering, procurement and construction manager at the Sigatoka Iron Sand project.¹⁷³

5.4 Threats and impacts

While the project is still in its exploration stage, as outlined in section 3.1, the black sand mining activities have the potential to cause significant environmental degradation.

5.4.1 Environmental threats

A key concern is the threat that the project may pose to fish and marine fauna, and the impact of this on the fishing industry. The Sigatoka river estuary encompasses *qoliqoli* that are owned by the various surrounding villages.¹⁷⁴ Fishing and shellfish collection are important sources of subsistence food and provide the main source of protein for local communities, with excess sold in local markets for cash income.¹⁷⁵ The project EIA identifies the potential for “short term” reductions in populations of crab, lobster, kuka and mangrove crab.¹⁷⁶ It also notes that “extensive and unsustainable dredging activities will destroy or disturb fish habitat” however, it maintains that the operation will produce an overall positive effect on the fishing industry.¹⁷⁷ The EIA claims that widening the river will cause a “massive spontaneous increase in migratory species in the river” and that “the impact on other marine life would be minimal or temporary.”¹⁷⁸ However, given the complexity of assessing the potential impacts of repeated dredging on fish and crustaceans, the lack of clarity around the scale, scope and timing of the company operations and the significant reliance of local communities on fish stocks, this assessment warrants further investigation.¹⁷⁹

Further, in a 2017 consultation, locals reported negative impacts from the dredging done in 2016-17 by China Railway First Group, including negative impacts on small crabs, shorebirds and fish breeding grounds.¹⁸⁰ This raises questions about what impacts might be seen from the longer-term and more extensive dredging proposed as part of the ironsands project. In the same 2017 consultation, a local interviewee also indicated that since the Dome Gold Mines exploration began, turtles no longer nest in the same locations - eliminating a food source and tourist destination.¹⁸¹ The EIA further identifies the dumpsite as a cause for “major concern”.¹⁸² If there were to be an increased sediment load in the river due to poor dumpsite practices, problems would be caused downstream for the bivalves, which in turn would suffocate eggs, coral and molluscan larvae.¹⁸³ Further issues surrounding dumpsite mismanagement include dredged materials re-entering the river during a severe weather event.¹⁸⁴ Dredged materials contain contaminants that if ingested by marine animals can be deadly.¹⁸⁵

The EIA also focuses significantly on the dredging operation with little detailed discussion of the impacts from land mining on Koroua Island or the Kulukulu area. Dome Gold Mines’ recent announcements suggest that there are significant mineral deposits in each location, so a detailed assessment of the impacts of mining in those areas is essential.¹⁸⁶

Of significant concern for the region is the threat posed to the Sigatoka Sand Dunes.¹⁸⁷ The dunes are both environmentally and culturally significant, with archaeological excavations of the area uncovering pottery more than 2600 years old, as well as one of the largest burial sites in the Pacific.¹⁸⁸ Dome Gold Mines have stated that their “licence specifically excludes the Sigatoka Sand Dunes National Park”.¹⁸⁹ However, the EIA does not assess potential risks to the dunes from changes in the surrounding ecosystem due to dredging and land mining.

5.4.2 Flood mitigation, erosion and subsidence

Dome Gold Mines has asserted “If our project proceeds at Sigatoka it will have substantial environmental benefits, including significant mitigation of the chronic flooding that occurs regularly in the Sigatoka River, and revitalisation of the river, which is currently choked with sand.”¹⁹⁰ This is significant, as Sigatoka has experienced frequent flash flooding in recent years. The EIA also points to flood mitigation and associated reduction in damages to crops and property as a benefit from the project.¹⁹¹ However, it notes that “the proposed pit dredging will not increase river discharge flow as long as the sand bar and the river mouth breach remain intact for now”.¹⁹² It recommends opening the river mouth as part of the dredging operation.

It is unclear from the EIA whether opening the river

mouth will form part of the company plans. While a media statement by Dome Gold Mines in 2020 mentioned the benefits that would come from opening the river mouth to the sea, recent company announcements have emphasised the mineral resources available in the onshore areas of the exploration licence area, making it unclear whether the proposed activity will definitely involve opening the river mouth.¹⁹³

The EIA also notes risks of “side slope failure” on the river banks at Koroua and Nukunuku islands, and potential erosion risks at dump sites.¹⁹⁴ Given the significant erosion and subsidence risks seen in black sand mining in the Philippines, it is important that the potential impacts are well understood before any mining commences.

5.4.3 Economic, Cultural and Social impacts

As Sigatoka sits at the heart of popular tourist destination the Coral Coast, concerns are being raised that if mining was to go ahead, it would devalue the tourism industry resulting in job losses and greater economic misfortune.¹⁹⁵ The Coral Coast is the second most popular tourism destination in Fiji, responsible for 17% of all visitor days.¹⁹⁶ The EIA acknowledged that the “amenity and landscape values” of the mining site will be significantly altered.¹⁹⁷ This is downplayed in the report, but for an area that relies on tourism to ensure its livelihood, any alteration of the landscape could have dire consequences for the industry and towns within the region.



Piled sand at the Sigatoka river mouth area after flood mitigation dredging works in 2017. © Sigatoka Totoka

The Sigatoka River and adjacent areas also provides the locals with an area for recreation activities, including swimming, picnicking and rugby union.¹⁹⁸ Concerns have been raised that mining in the region will affect recreational areas, rendering them unusable by the public.¹⁹⁹

Further, during construction of the mine, the operation of heavy machinery may create a significant amount of noise and dust pollution within the region. There would need to be road excavation works and delivery trucks operating concurrently, creating a noisy and dangerous environment.²⁰⁰ This impact is considered short-term, but would be highly disruptive for locals.

Sigatoka specifically has a special connection to the *Lapita* people, who are credited for being the first humans to colonise the western tropical Pacific Islands.²⁰¹ The *Lapita* people have an ancestral connection to the sand dunes, where they believe their people once lived.²⁰² In order to avoid disturbing any remains, they intentionally leave this area undisturbed.²⁰³ Examples of their connection to the region include two rocks called *Tabu vuto* at the mouth of the river, known as the place where the water never goes brown.²⁰⁴ The mouth of the river itself, known as *Vila ni Yalo*, is also sacred and is said to be a place where the spirits of recently deceased people pass through.²⁰⁵

Any dredging and mining activities that take place within this region threaten to undermine the cultural and spiritual significance of these places.

5.5 Free, Prior and Informed Consent

There is strong evidence that communities in the project area, or neighbouring areas that may be affected by the project, have not given their free, prior and informed consent to the mining operations proposed in the Sigatoka area. It is unclear whether Magma Mines and Dome Gold Mines intend to seek this consent before applying for the grant of a mining licence. Significant changes to the scope of the project that change the use of the land will require a new EIA, as per 35(4) of the *Environment Management (EIA Process) Regulations*.

5.5.1 Documented community consultations

The 2014 project EIA states that a socioeconomic survey was carried out on areas which lay within just 1km of the mining site.²⁰⁶ The consultants surveyed 117 people from Nayawa village, Nasigatoka village, Vunavutu village,

Nasama village, Sigatoka town, East Bank area and Kulukulu settlement.²⁰⁷ Almost half the people surveyed (52) were from Sigatoka town, with small samples in the other villages. For example, only 16 people were surveyed from Kulukulu, the area now shaping up to be the focus of the first six to seven years of mining, and only ten from Vunavutu, the community with landowning rights over Koroua Island.

The EIA states:

[A]ll respondents agreed that the mining project will be of great benefit to the community. The positive contributing factors as mentioned by respondents include employment opportunity, improve on existing financial status and increase fish yield and catch since dredging will be carried out.²⁰⁸

The EIA states that survey respondents noted potential negative effects included river erosion on the embankment, noise during construction and operations, and disruption to the marine ecosystem.²⁰⁹ The EIA further concludes that “support for the dredging of the Sigatoka River was overwhelming...ninety five (96%) [sic] support the development”.²¹⁰ The EIA noted that “ongoing consultation to provide awareness and clarification on the development is recommended to offset any doubt or fear within the community”.²¹¹

However, the EIA does not provide information about when, what or how villagers were told about the project. The comments from the respondents appear to focus on the impacts of dredging at the river mouth. Since the EIA was undertaken, government-funded dredging for flood alleviation has already occurred and the company’s most recent announcements indicate the initial focus of the project may be land-based mining in Kulukulu. It also does not detail any consultations that occurred with villages more broadly, other than the 117 people who were surveyed (almost half of whom were located in Sigatoka town, outside the project area).²¹² As noted in section 2.3, above, Fiji’s *Environmental Management Act 2007* requires the project proponent and the Department of Environment to undertake public consultation as part of the development of the EIA.

A 2017 report of discussions with community members in Sigatoka noted that “the participants shared a general discontent with prospects of mining, frustration with the lack of clear, honest communication from mining company representatives and worry that the river and their livelihoods would be ruined if mining was to

happen”.²¹³ The same report found that “information provided to iTaukei about dredging and mining was misleading and inaccurate”.

A February 2020 article in *Fiji Village* quoted Ashneel Sudhakar, former Lands and Resource Minister, stating that since Magma Mines began exploring in Sigatoka, it has held numerous landowner and community consultations, with the support of the Nadroga Provincial Office. Sudhakar stated that in addition, the Mineral Resources Department’s Community Unit has also undertaken awareness programs within the Tikina O Nasigatoka.²¹⁴ In a statement to ABC News, a Dome Gold Mines representative also argued the company had “consistently and diligently engaged with local stakeholders, including regular meetings in local villages”. The statement also noted that the company had provided material support to the community.²¹⁵

5.5.2 Community opposition

Communities within the project area, particularly the community at Vunavutu, have been active in resisting the proposed project.

In March 2015, the *turaga ni vanua* of Vunavutu village, Ratu Timoci Vosailagi, wrote to the Prime Minister, the Hon. Frank Bainimarama, outlining the community’s concerns regarding proposals to mine at Koroua Island, noting that three ancestral sites exist on the island and are sacred to the *Itaukei* people.²¹⁶ In the letter, Mr Vosailagi stated:

We the landowning unit of Koroua Island hereby close all mining operations on Koroua Island. The reason being we have three ancestral sites on the island and it is very sacred to us the *i-Taukei* people, taking into consideration our cultural values.

The decision was hard as this mining venture would have been a source of wealth for our landowning unit. However, we believe that these sites are of great significance to us and preserving them would benefit our future descendants as they will be able to understand their ancestral roots. Therefore, we hope that you would acknowledge our plea and take into consideration the preservice of our cultural identity.²¹⁷

Despite the letter, in late 2017, Dome Gold Mines Ltd completed sonic drilling at Koroua Island, including a total of 69 sonic drill holes for an average depth of 23.2m.²¹⁸

In March 2020, villagers from Vunavutu sealed off the sole bridge to Koroua Island, locking the only point of entry to the island, and blocking the access of all outsiders. In a media interview, Mr Vosailagi said “my answer for Koroua to be mined, sold or leased is definitely ‘no’”,

emphasising that the island is the only land available on which communities can plant staple food, including cassava, kumala and yams.²¹⁹

Opposition to the project has also been documented from other communities in the project area. In February 2020, a petition signed by 900 villagers in Sigatoka was submitted to the Fijian Parliament by Mr Viliame Gavoka, a SODELPA MP. The petition urged that a parliamentary committee inquire into the proposal to mine the Sigatoka river mouth. After the Speaker refused to look at the petition,²²⁰ all 24 opposition MPs walked out of the chamber.²²¹

Mr Gavoka stated that in preparation for the Parliament sittings, he had consulted with the landowning units in the Nadroga/Navosa Province particularly the people of the Tikina ‘o Nasigatoka and the surrounding riverbank communities. People had signed the petition from the villages of Nayawa, Laselase, Yavulo, Sigatoka, Nasama, Vunavutu, Volivoli and also the Kulukulu area.²²²

The Catholic Archbishop of Suva, Peter Loy Chong, has spoken out in a public sermon about the new processes of mining on the Sigatoka river, stating that it is “not a just and sustainable economic development”. In delivering his sermon, Chong strongly highlighted the importance of the relationship between human beings and the Earth, and stated that his people “need to make their voice loud and clear” in order to keep relationships with each other and creation.²²³

A member of the opposition political party in Fiji, Lynda Tabuya, has also been outspoken about the mine in Sigatoka. A media article quoted Tabuya as urging the Australian government to take a closer look at the mine, due to Dome Gold Mines being an Australian company.

“ We’re hoping that Australia will turn its attention to this, because it is an Australian mining company that has received this licence.”²²⁴

5.6 Current status of the project

Magma Mines’ Special Prospecting Licence at Sigatoka (SPL1495) was renewed in February 2019 for a further 3-year period. It will expire on February 10, 2022.²²⁵ Dome Gold Mines continues to take steps towards obtaining a mining licence at the Sigatoka site. In November 2020, Dome indicated the preparation of a feasibility study had been suspended for the past 12 months, in part to wait for further drilling to confirm ironsand deposits in parts of the exploration area.

It is unclear whether the company intends to consult communities about its updated mining plans before applying for a mining lease in Sigatoka. Dome’s most recent Annual Report notes that the 2014 EIA will be updated as part of preparing the definitive feasibility study.²²⁶



We’re hoping that Australia will turn its attention to this, because it is an Australian mining company that has received this licence.

LYNDA TABUYA
FIJIAN POLITICIAN AND LAWYER

6 CONCLUSION AND RECOMMENDATIONS

This report has reviewed available evidence relating to the black sand mining projects in Ba and Sigatoka. In both locations, the black sand mining operations have the potential to cause significant damage to marine ecosystems and the surrounding land areas. In turn, this damage could have devastating impacts on the livelihoods and resilience of local communities. Evidence from large-scale dredging and onshore sand mining operations overseas highlight the complexity of the possible ecosystem impacts from this work, many of which are still only partly understood. Recent tropical cyclones in Fiji have highlighted the increasing vulnerability of these communities to the impacts of climate change, including extreme weather events and flash flooding. An approach of “mine first, pay later” could see coastal communities in the project areas losing access to environmental and cultural resources for generations to come, reducing their resilience to future disasters.

There are also serious questions about Free, Prior and Informed Consent in each project and a lack of a clear social licence to operate. In Ba, although the company has secured a mining licence, several community members have argued they were not fully informed about the project before it commenced. In Sigatoka, fierce community opposition highlights a lack of consent to project development.

These concerns highlight weaknesses in the protection of communities’ rights to give Free, Prior and Informed Consent to projects under Fijian law. While the Environmental Impact Assessment process provides for public consultation, it does not mandate that the consent of affected communities is required before work takes place. Commentators have also criticised the application of this process in practice, including for weaknesses in the way that proponents and government agencies engage communities in that process.²²⁷

Jubilee Australia, Caritas Fiji and Fiji Council of Social Services therefore recommend:

- Further development of the black sand mining operations at Ba and Sigatoka should be halted until each community has been fully informed about the project, including potential environmental impacts, and has given Free, Prior and Informed Consent to the project. This should include widespread consent from members across the community, particularly women.
- No mining license should be approved at Sigatoka until a new Environmental Impact Assessment has been carried out that assesses the impacts based on the intended project scope as outlined in the company’s recent announcements.
- In Ba, a similar environmental assessment is needed to establish the extent of siltation and fish and crab reduction reported by community members, potential erosion risks, and how the project may impact on the community’s resilience to future extreme weather events and flash flooding.
- Free, Prior and Informed Consent (FPIC) is essential to the wellbeing and resilience of communities in the face of climate change, as it enables them to manage their land and resources to mitigate negative impacts and protect resources for future generations. Any future proposed black sand mining project should be subject to stringent environmental assessment, mitigation and monitoring and should not proceed without the FPIC of all affected communities.



Sigatoka River Bridge © Jane Faulks

APPENDIX A - CHRONOLOGY OF EVENTS

Black sand mining at Ba

| Date | Detail |
|---------------|---|
| 1999 | Amex Resources Limited is founded and registered in Western Australia ²²⁹ |
| August 2008 | Amex applies for a prospecting licence from the Mineral Resources Department ²³⁰ |
| 2009 | Amex is issued a special prospecting licence ²³¹ |
| 2011 | Environmental Impact Assessment conducted |
| 2012 | Fijian Government issues Special Mining Lease to Amex Resources ²³² |
| January 2014 | Construction works commence for the Mba Delta Iron Sands project ²³³ |
| February 2017 | Construction begins on the Lautoka Port facility |
| March 2017 | Amex Resources is acquired by the Waratah Group ²³⁴ |
| May 2017 | Official handover of the Lautoka Port facility to Amex Resources ²³⁵ |
| May 2018 | Eight marine vessels are delivered to the mouth of the Ba River for the Mba River Delta Mining project ²³⁶ |
| June 2018 | Votua village awareness tour conducted by Archdiocese of Suva |
| 2019 | Lautoka Port Facility opens |
| August 2019 | First shipment from the Lautoka Port facility is delivered to China ²³⁷ |
| November 2019 | Second shipment from the Lautoka Port Facility is delivered |
| March 2020 | Amex Resources lays off 107 workers at its Lautoka Port Facility ²³⁸ |

Black sand exploration at Sigatoka

| Event | Detail |
|----------------------|--|
| 8 July 2011 | Dome Gold Mines Ltd registered. |
| October 2013 | Dome Gold Mines Ltd listed on the Australian Stock Exchange. |
| Early 2013 | Bridge constructed from Sigatoka to Koroua Island |
| August 2014 | Dome acquired Magma Mines Pty Ltd. ²³⁹ |
| October 2014 | JORC 2012 resource estimate published. ²⁴⁰ |
| December 2014 | Environmental Impact Assessment completed. ²⁴¹ |
| March 2015 | A prefeasibility study is completed. ²⁴² |
| March 2015 | Letter written to Prime Minister of Fiji stating that the landowners of Koroua Island have closed the land to mining operations. |
| October 2015 | The Fijian Department of Environment approve the Environmental Impact Assessment. ²⁴³ |
| July – December 2017 | Sonic drilling at Sigatoka. ²⁴⁴ |
| December 2018 | Contract signed with IHC Robbins to complete a Definitive Feasibility Study for the Sigatoka project. ²⁴⁵ |
| February 2019 | The Fijian Ministry for Environment renews Magma's exploration license. ²⁴⁶ |
| May 2019 | The definitive feasibility study finishes its first phase. ²⁴⁷ |
| February 2020 | Petition opposing the mine . tabled in parliament. ²⁴⁸ |
| October 2020 | Definitive feasibility study suspended due to the COVID-19 pandemic. ²⁴⁹ |

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