



BAN RIVERINE  
TAILINGS DISPOSAL  
IN SEPIK RIVER  
AND  
PNG AS A WHOLE

## ***THE RIVER IS NOT OURS:***

*THE FRIEDA RIVER MINE AND THE THREAT TO THE SEPIK*

# Acknowledgements

This is a publication of the Jubilee Australia Research Centre and Project Sepik

Authors: Luke Fletcher and Emmanuel Peni

Editor: Luke Fletcher

Field research: Matilda Lruming, Florence Sui, Zephaniah Aaron Winduo, Wuoshiwarah Livai Kuaken, Jeffrey Napai, Collis Pingah

Design by: Dina Hopstad Rui

Published June 2019

*We would like to thank the following for their input and advice:*

Elizabeth Cox, Gavin Mudd, Christina Hill, Helen Dennett, Tim King, Natalie Lowrey, Kate McDonald, Pichamon Yeophantong, Elizabeth Thurbon, Kristian Lasslett, Dina Hopstad Rui, Katie Gauld.

The information in this report may be printed or copied for non-commercial purposes with proper acknowledgement of Jubilee Australia and Project Sepik.

## About Jubilee Australia

Jubilee Australia (formal name: the Jubilee Australia Research Centre) engages in research and advocacy to promote economic justice for communities in the Asia-Pacific region and accountability for Australian corporations and government agencies operating there.

## About Project Sepik

The not-for-profit organisation Project Sepik Inc (PS) was formally established in 2019 but has been working in the region since 2016. Project Sepik advocates for the vision of a local environment with a sustained balance of life via the promotion of environmentally sustainable practices and holding to account those that are exploiting the environment.

The organization aims to influence in good governance and transparency of the development of natural resources in Papua New Guinea (PNG) by, amongst other things: empowering local landowners, advocating on issues of land acquisition and development in the Sepik, and capacity-building and stakeholder engagement in the region.



### **Contact Jubilee Australia:**

Phone: (+61) 02 8286 9706

Email: [inquiry@jubileeaustralia.org](mailto:inquiry@jubileeaustralia.org)

Mail to: PO Box 20885 World Square NSW 2002

[www.jubileeaustralia.org](http://www.jubileeaustralia.org)

**The river is not ours, it belongs to the future. We are only vessels of the Sepik spirit that dwells to celebrate and protect it. We will guard it with our life.**

**Emmanuel Peni, Project Sepik**

*Family canoeing on the Sepik River © Project Sepik*



# Table of contents

Executive summary	5
Introduction	6
The Sepik region	8
The Frieda River mine	10
Environmental risks of copper and gold mining	12
The Upper Sepik awareness tour	14
Environmental concerns	16
Consultation, consent and resistance	18
Conclusion	20
Endnotes	21

Local protester © Zephaniah Aaron Winduo



# Executive summary

The Frieda River Mine is a project in development in PNG's West and East Sepik Provinces, which seeks to exploit the copper and gold deposits there via an open cut mine and associated infrastructure including a hydro-electric plant and an integrated tailings storage facility.

Copper mineralisation was discovered in the Frieda River in the 1960s, but the project in its current form has been in train for the last ten years, first via the efforts of the Anglo-Swiss giant Xtrata, and now via the Australia-based PanAust, which is 100% owned by the Chinese provincial government of Guandong.

The Frieda River flows into the Sepik River, which is a 1126 km long watercourse that flows across the West and East Sepik Provinces on mainland Papua New Guinea (PNG). Along with the Fly River to the South and the Marembo river to the West, it is generally considered to be one of three major river systems on the island of New Guinea. The Sepik catchment area is some 78,000 square km and is inhabited by more than 400,00 people, 70,000 of whom live on the floodplain.

This report is about the desires of the people who live on the Sepik river to have their say about this project which, they believe, could have a huge impact on their lives and on their environment. It is a collaboration between the Australian-based Jubilee Australia Research Centre and the Papua New Guinea-based Project Sepik.

One of the biggest challenges for the Frieda River project is how to build a safe and effective tailings storage facility, that can manage any acid rock drainage that might be generated.

Although the company reportedly submitted an environmental impact statement (EIS) to the Conservation and Environmental Protection Authority (CAPE), it has not been publicly released, nor has Jubilee been able to find one in its research.

Three factors magnify the concerns about the tailings issue: the substantial amount of tailings that will be generated, the inaccessibility of the terrain and the extremely high rainfall and preponderance of seismic activity.

In October 2018, a seven-member team from the community organisation Project Sepik conducted an awareness tour of 23 villages on the Upper Sepik. The seven-member team included officials from Project Sepik (co-publisher of this report).

The purpose of the tour was threefold. (1) To determine what impacts that the people living in the villages of the Upper Sepik had observed on their local environment; (2) To ascertain the attitude of each village towards the planned Frieda River Mine; (3) To share the concerns of Project Sepik about the impacts that the mine might have on the Sepik region.

The awareness tour found that communities were concerned that increased sedimentation, bank degradation and flooding along the river had impacted fish stocks and sago and food cultivation. The communities believe that the Frieda River mine will further exacerbate these problems, impacting their food security and livelihood.

Project Sepik also found that communities had either not been consulted about the proposed mine, or already opposed to the mine, refused to meet with those responsible for the consultation. An atmosphere of animosity and lack of trust has developed, including acts of sabotage and resistance on behalf of some villagers. There are reports of official (mainly police) intimidation of anti-mine activists.

The report makes three conclusions:

- (1) The lack of information released by the company about its environmental management plans are continuing to cause uncertainty about whether the company's environmental management plans will be fit for purpose;
- (2) The potential for this project to lead to damaging social conflict and unrest is real and must be taken seriously;
- (3) It does not appear that the Free, Prior and Informed Consent of the communities living downstream of the Frieda River mine has been secured.

# Introduction

This report is about the struggles of the people who live on the Sepik river to have their say about a project which, they believe, could have a huge impact on their life and on their environment: the Frieda River Mine. Before outlining the report's contents, it is worth reflection on the context in which this struggle about whether or not to proceed with the Frieda River mine is taking place.

**First**, there is the argument, proposed by many of PNG's political class that, with the impending closure of many of the country's mines, that PNG will simply not be able to support itself without the initiation of new large-scale mining, oil and gas projects.<sup>1</sup> Unfortunately, this argument does not stack up against the evidence. Certainly, the resource sector contributes a significant amount to exports and foreign exchange earnings. But as economist and PNG expert Paul Flanagan has showed, over the last decades, as the resource sector has boomed and its share of both GDP and exports has increased, PNG has gone backward in just about all important human development indicators. The reasons why the resources boom has not helped most people in PNG are many and include; tax loopholes from resource revenues, misappropriation and misspending of funds and exchange rate effects from resource projects that hurt the export agricultural sector.<sup>2</sup> Whether these problems will necessarily continue is an open question, but the political situation in PNG does not inspire confidence. Continuing claims that PNG needs big mines like Frieda River for its development are, therefore, entitled to be viewed with some suspicion.

The **second context** in which debate about the mine is taking place is the history in PNG and in Melanesia more generally of disastrous environmental impacts of gold and copper mines, especially in the 1970s and 1980s. The most notorious environmental catastrophe in PNG is the Ok Tedi mine in PNG's Western Province. After a collapse of the project's tailings facility in 1984, Australian company BHP negotiated a deal with the government whereby the tailings could be deposited directly into the Ok Tedi and Fly river systems. As a result, around 880 million tonnes of mine waste were released into the rivers between 1981 and 1998, rising to an estimated 2

billion tonnes over the life of the mine. Mitigation measures subsequently introduced, such as a sediment restriction level, dredging trials and a new mine waste tailings facility in 2006, reduced but did not stop the release of waste. In any case, by then, much of the damage had been done. A rise in the level of the riverbed, an increase in sediments in the water, greater flooding and sediment deposits in riverbanks and changes in the water chemistry (especially copper) have not only killed fish population but smothered gardening land and forests with mud.<sup>3</sup>

Grossly inadequate environmental practices saw similar destruction of the Jaba river system in Bougainville, site of the controversial Panguna mine. It is estimated that hundreds of millions of tonnes of mineral waste fed into this river system during the mine's operation between 1972-1989, an issue which fuelled resentment and contributed to the Pacific region's worst civil war.<sup>4</sup> The Freeport mine across the border in West Papua is estimated to drop around 20,000 tonnes of tailings into the Aikwa river delta system every day; in the words of a Guardian report, 'turning thousands of hectares of verdant forest and mangroves into wasteland and rendering turgid the once-crystal waters of the highlands'.<sup>5</sup> One of the questions this report examines is whether these disasters serve as cautionary tales that may be avoided, such as the case of Frieda River, or are rather a glimpse of the Sepik's future.

The **third context** of this report is the question of consent. The notion of self-determination, or self-determined development, has a long history, but as a legal concept it is articulated in the UN Declaration on the Rights of Indigenous Peoples. Within the framework of the Declaration, indigenous peoples have the right to make informed choices about the kind of development that happens on their land. Article 32 of the Declaration talks about these rights as well as the mechanisms of consultations in good faith that should be required before important decisions on development are decided on. This best practice consultation mechanism is known as the right of Free, Prior and Informed Consent (FPIC) and is also embedded in the policies of other international institutions such as the World Bank's IFC Performance Standards.<sup>6</sup>



*The Sepik River © Emmanuel Peni*

The question of who needs to be consulted for FPIC to be given, when and why, is contested. PNG mining legislation places the emphasis on gaining consent of the landowners who have rights to the land where the minerals are or where project infrastructure has been built. However, many of PNG's mines rely on rivers for access, transport and tailings dispersal. Nevertheless, there has been a tendency not to consult communities downstream despite the fact that both their environment and their way of life are altered to the same extent as those communities living where the extraction happens. But the history of PNG tells us one thing for certain: if downstream communities whose land does not contain the resource but whose lives and environment will be affected by any resource are not consulted, it can result in environmental disasters and social unrest.

The purpose of this report is to investigate the questions surrounding the Frieda River mine and its potential impact on the communities living downstream on the Sepik River. What did the visit of the Project Sepik team unveil about the concerns of these communities with respect to the proposed mine? What impacts have the extractives industries had on their environment? Have they been consulted in the planning of the Frieda River project? Has the company sought Free, Prior and Informed Consent (FPIC) from all affected communities?

Are those people pushing the mine in the highest levels of government doing so against the wishes of marginalised communities--a strategy which would seem to entail all sorts of risks, sovereign and otherwise?

This report is a collaboration between the Australian-based Jubilee Australia Research Centre and the Papua New Guinea-based Project Sepik. Jubilee Australia has a long history of interest in and engagement with the question of the benefits or otherwise of mining, oil and gas projects in PNG. Its research output on the future mining in of Bougainville and the impact of the las boom in PNG makes it will placed to explore this particular issue.

Much of the information in this report is based on a late 2018 visit by Project Sepik to riverbank communities living on the Sepik. Project Sepik engages in informing and empowering local landowners, advocating on issues of land acquisition and development, and capacity-building and stakeholder engagement in the region. Project Sepik has taken an explicit position opposing the Frieda River mine because of its belief that it will threaten the balance of life of the river and its tributaries and lakes, on which the livelihoods of 400,000 people depend.

# The Sepik River and its people<sup>7</sup>



Map 1: The Sepik River and the proposed Frieda River Mine

The Sepik River is a 1126km long watercourse that flows across the West and East Sepik Provinces of mainland Papua New Guinea (PNG). (Due to its serpentine nature, the river itself is actually over three times its 400km length ‘as the crow flies’.) The river is fed by smaller waterways flowing down from the highlands of the northern part of mainland PNG, where it meanders eastward across a large, lake-filled basin until it enters into the Bismark Sea east of the provincial capital of Wewak. Along with the Fly River to the south and the Marambo river to the west, it is generally considered to be one of the three major river systems on the island of New Guinea. During the rainy season, the adjacent riverbank and floodplain go underwater for almost 8 to 10 weeks (or even 3 to 4 months, depending on weather patterns). The river expands to between 30-70 metres wide over these months and has been described as ‘not so much a landscape as a fluidscape’.

The Sepik catchment area is some 78,000 square km and is inhabited by more than 400,000 people, 70,000 of whom live on the floodplain. Communities living on the Sepik rely on the river for food, for drinking water, for washing, and for transport (for example, seasonal shifting of heavy logs and materials for house construction, floating lengths of sago palm into the village as a food reserve). The local economy is built on the sale of sago, fish, freshwater prawn, eels, turtles, and crocodile eggs. Crocodiles are also harvested for their skins and teeth. The riverbanks are also an important part of the local economy during the dry seasons; the fertile banks are an important site for vegetable and fruit gardens, local tobacco and for some sago cultivation – although much of this happens inland from the river.

Economically, the Sepik region has a history in pre-colonial times of long distance trade and barter



## **Communities living on the Sepik rely on the river for food, for drinking water, for washing, and for transport.**

with other regions—mostly by women. Colonial authorities (first German and then Australian) obviously had major impacts, although the Sepik landscape today remains relatively ‘undeveloped’ compared to some other parts of Melanesia. Roads, dams, bridges are scarce or non-existent, the region lacks any large scale commercial enterprises and dugout canoes remain the main form of transportation. The administrative outposts of Pagwi and Angoram are the only places that are serviced by roads. In the colonial era, the Catholic church did establish many health and education facilities, especially post World War II and especially in the areas downstream from Ambunti. By the 1970s, a nascent tourism industry had developed with a number of riverboats bringing tourists, who were drawn to the impressive dwellings built in riverbank villages and the wooden (garu or eaglewood) handicrafts and masks, especially displaying the crocodile motif (crocodiles occupy a place of great importance in the spiritual and cultural world of the Sepik people). Unfortunately, since the 1980s and 1990s, the tourist boats have stopped coming, leading to a decline in revenue-earning opportunities for the people. This occurred at a time when the delivery of basic services from the provincial government also went into serious decline.

The Sepik is home to one of the biggest tuna nests in the Pacific in Murik Lakes near where river meets the Bismarck Sea, at Kuparl Village, Angoram District. Nevertheless, the Sepik has produced relatively fewer fish than rivers of comparable size. It is partly because of this that the PNG government and the UN Food and Agriculture Organisation have attempted to introduce approximately ten ‘exotic’ fish species into the riverine ecosystem, much of it in the 1980s, which wiped out the favoured tilapia.

Since then, further exotic species have colonised the river and affected both native populations and those introduced in earlier decades. Noxious weeds introduced in earlier decades also undermined the health of the river system, especially in the lakes and the tributaries, and took decades to eradicate. Added to this, an extraordinary flood in 2009-2010 devastated riverbank communities and dwellings, bringing further hardships to the subsistence lifestyles of the Sepik people. Nevertheless, some locals have observed a recovery of native populations in recent years, especially tilapia.

Environmentalists have often celebrated the ‘unspoilt’ and ‘pristine’ nature of the river, perhaps underplaying the extent to which these environmental interventions and interruptions have already significantly upset the riverine ecosystem.<sup>8</sup>

It is in this context that some villages and communities in the Sepik—especially those further inland from the floodplains—have been convinced to allow logging and palm oil cultivation. This practice goes back about two decades, with recent reports suggesting about ten such projects are currently operational. During the 1990s, local NGOs, including the East Sepik Council of women, worked with World Wildlife Fund (WWF), MEF and others to protest and prevent logging in many areas. The increased river traffic from such operations have further impacted the river and led to debates and ambivalence within Sepik communities about whether extractive industries like logging (or mining) represent a solution to or a cause of their ongoing problems. Moreover, research by Oxfam Australia suggests that the logging and oil palm developments in East Sepik Province have been characterised by flawed consent processes.<sup>9</sup>

# The Frieda River mine

The Frieda River Mine is a project in development in PNG's West Sepik Province which seeks to exploit the copper and gold in the Horse-Ivaal-Trukai, Ekwai and Koki (HITEK) and Nena mineral deposits which are estimated to include 13 million tonnes of copper and 21 million tonnes of gold. The project consists of an open cut mine and associated infrastructure including a hydro-electric plant and an integrated tailings storage facility.

Copper mineralisation was discovered in the Frieda River in the 1960s and from time to time over the next few decades exploration, engineering and environmental investigations were conducted. Things really started to get moving after Xstrata acquired exploration rights and began developing the project in earnest from 2007. Two years later, in September 2009, Xstrata published an Environmental Inception Report in which it announced its intention to start work on the project in 2012, with production to begin in 2016.<sup>10</sup>

Nevertheless, the project stalled until the Brisbane-based company PanAust took over the rights with another Australian company, Highlands Pacific, acquiring a minor (20%) stake in 2014. PanAust submitted a Special Mine Lease (SML) application

to PNG's Mineral Resources Authority (MRA) in June 2016.

PanAust projected in 2017 that the project would produce pre-tax revenues of US\$7.1 billion, with a pre-production capital expenditure of US\$3.6 billion and a mine life of 17-18 years.<sup>11</sup> However, a new announcement in December 2018, projected an increase in ore reserves from 686 to 1,365 million tonnes. These new projections suggested a longer mine life of around 30 years. Pre-tax revenues would also increase although a precise figure was not included in the more recent company announcement.<sup>12</sup>

The December 2018 announcements also included other changes, most importantly a new 340km slurry pipeline would be built to run from the mine to the port of Vanimo, instead of transporting the slurry by boat as originally planned. All this would increase capital expenditure from US\$3.6 to US\$6 million. The new plan also suggested that new additions to the broader regional context were needed: and upgrade of the road linking the mine to the Port of Vanimo and an upgrade to the existing airstrip at Green River. The company suggested that costs for these extra transport facilities,

## WHO IS PANAUUST?

PanAust is a Chinese-owned, Australian-based company headquartered in Brisbane. It has been operating since 2001, mainly in Laos.

PanAust currently operates two working mines, the Phu Kham Copper-Gold mine and the Ban Houayxai Gold-Silver mine, both in Laos. It also holds exploration licenses in Myanmar.<sup>13</sup>

In 2015, PanAust was itself acquired by Guandong Rising Assets Management (GRAM), although PanAust continues to be headquartered in Brisbane and is listed on the Australian Stock Exchange (ASX).

GRAM is a Chinese state-owned enterprise whose principal business is the mining and distribution of metal products, including lead, zinc, and copper. It also has business interests in property and information technology. GRAM has been investing in Australia since 2008, acquiring four firms in the country. Reporting in October 2017 has suggested that its Chairman, Li Jimming, has been under investigation by the provincial Guandong government for corruption involving some of his Australian deals.<sup>14</sup>

estimated at \$739 million, should be met either by the government or public-private partnerships.<sup>15</sup>

Actual construction has been relatively minimal at this point. A river port and an exploration access track linking the port to the Frieda River Airstrip were completed in 2016. There has also been some felling of trees to clear a road from Green River to the proposed mine site.

An integrated tailings management system has been proposed (see next section) although details about this have yet to be released.

The major developments for the project are laid out in the table below.

The project appears to enjoy the support of some Sepik leaders. Three Sepik MPs recently came out in support of the project: Richard Maru (then National Planning Minister), Solan Mirism (then Defense Minister) and Johnson Wapunai.<sup>16</sup>

East Sepik Province Governor Alan Bird has taken a more nuanced position, saying last year that although there are no easy answers, young people are no longer happy with a ‘traditional lifestyle’, and implying that the mine will lead to greater

education and economic opportunities for the young people. Governor Bird has also been clear that the final decision should rest with the Sepik people.<sup>17</sup>

Finally, it is important to note that in 2017, the *China Commerce of Metals, Minerals & Chemicals Importers & Exporters (CCCMC)* issued its revised ‘Guidelines for Social Responsibility in Outbound Mining Investments’. This document states that:

- Prior to any mining operations, the right to free, prior and informed consent of local communities, including indigenous peoples, must be pursued;
- Conduct environmental impact assessments prior to any mining operation and monitor environmental impact on a regular basis;
- Promote the conservation and protection of biodiversity and the environment throughout the lifecycle and value chain of the mining operation
- Chinese mining companies are also expected to adhere to the UN Guiding Principles on Business and Human Rights).<sup>18</sup>

### FRIEDA RIVER DEVELOPMENT TIMELINE

Date	Development
May 2014	PanAust (80%) and Highlands Pacific announce that they will begin financing for the Frieda River Mine
May 2015	Guandong Rising Access Management (GRAM) raise money in order to acquire a controlling interest in ASX-listed PanAust
May 2016	Initial Project Feasibility Study completed
June 2016	PanAust lodges a Special Mining Lease (SML) Application to the PNG Mineral Resources Authority (MRA)
December 2016	PanAust lodges an Environmental Impact Statement for the project with the Conservation and Environmental Protection Authority (CEPA) of PNG
May 2017	PanAust releases an addendum to the 2016 feasibility study
December 2018	PanAust releases a new feasibility study which adopts an entirely new attitude towards the project

# Environmental risks of copper and gold mining

The major environmental risks that copper-gold mining can pose for a river such as the Sepik fall into three categories: (1) damage due to increased discharges into the river, (2) damage due to pollution (which can result even at low discharges) and (3) damage to the river system from an increase in the number of large vessels operating on the river.

(1) An increased release of mine waste, whether toxic or not, can cause all sorts of damage to a river system, via an increase of silt load and sedimentation in the water affecting aquatic life, destruction of riverbanks and low-lying forest due to silt deposition and increased flooding and changes to the riverbed (aggradation). The riverine tailings disposal that has been used over the last 30 years by the Ok Tedi Mine is an example of the severe negative impacts that riverine tailings disposal can have. It is worth noting that apart from an increase in copper in the sediment, heavy metal pollution (see below) appears to have been relatively minor.

(2) Another serious threat posed by copper mines is from sulphides, which can induce mercury and other heavy metal pollution as a result of a phenomenon called acid rock drainage. Mineral sulphides (particularly iron sulphide, or pyrite) from the tailings can react with oxygen in the air to become sulphuric acid. This sulphuric acid can then dissolve heavy metals (like mercury) out of nearby rocks and lead to increased heavy metals in the river system. These heavy metals can cause the death of fish and other aquatic life in the river system. Cyanide, used to extract the gold from the ore via a process called leaching, is a major problem in goldmines, but is not likely to be used in great quantities in this case where copper is the main product.<sup>19</sup>

3) Under the original plan, mineral concentrate was to be transported by barge down the river. This would have significantly increased traffic on the river, both in number and in size of vessels, and could also do damage to the river ecosystem. Large vessels can upset the flow of the river and cause problems to the water-borne wildlife. Their wakes

can increase flows into the banks increasing erosion and damaging gardens. These sort of problems, have in fact already been noted by communities living by the river (about 20 motorised vessels carrying fuel per month, by some estimates) and are therefore already a source of concern for local populations. See below for more specific concerns raised by communities.

## Proposed tailings storage facility

One of the biggest challenges for the Frieda River project is how to build a safe and effective tailings storage facility, and one that can manage any acid rock drainage that might be generated. A common way to deal with the problem is to create tailings dams where the sulfuric acid is neutralised by treatment with limestone. This converts the sulphuric acid into calcium sulphate which is a safe, inert substance that does not leach heavy metals.

PanAust has acknowledged the seriousness of this threat on many of its public statements about mine waste. For example:

‘The Project is designed to limit fugitive sediment emissions from the mine site and the potential for acid rock drainage. Mine waste rock and tailings will be stored subaqueously within an engineered integrated storage facility designed to Australian National Committee on Large Dams Incorporated (ANCOLD) standards.’<sup>20</sup>

It has been said that PanAust intends to use a similar integrated storage facility like the one adopted for its Phu Kahm Copper-Gold mine in Laos. The company reported in December 2019 submitting an environmental impact statement (EIS) to the Conservation and Environmental Protection Authority (CAPE), and in April PanAust reported that the EIS would be shared with project stakeholders in the provincial governments and with leaders of certain affected communities.<sup>21</sup> However, the EIS has not been publicly released, nor has Jubilee been able to find one in its research; to our knowledge, the EIS has not been shared with

**Frieda River is a mining project the likes of which PNG has never seen – it is the size of the rest of the PNG mining industry combined. That is, it equals the size of Panguna, Ok Tedi, Lihir, Porgera, Hidden Valley and Golpu together. The challenges of managing tailings, waste rock and water pollution are immense, and the common and often systemic failures at PNG mines to date do not bode well for claims that Frieda River can be developed responsibly. It is imperative that a full and proper public consultation process be followed to allow public scrutiny of the proposal and ensure that environmental and community values will be protected without any shadow of doubt**

**Gavin Mudd, Associate Professor at RMIT University**

any of the communities living downstream on the Sepik River.<sup>21</sup> For their part, East Sepik Governor Alan Bird and the pro-mine MPs have at least paid lip service to the idea that the mine must meet all environmental guidelines and not put the Sepik River system at risk.<sup>22</sup>

Three factors magnify the concerns about the tailings issue. First, the size of the ore body, combined with the relatively low grade of copper in the deposit, means that the mine is going to generate substantial tailings. This means a lot of waste that has to be treated and disposed of. Second, the inaccessibility of the terrain will pose challenges when it comes to finding a large enough site or sites for storage. Finally, the extremely high rainfall in the area and the fact that the area is a site of seismic activity add to the risks of a dam collapse. The technical complexity of the feat facing the mining engineers, the extremely large costs involved, and the weather and seismic situation all adds up to a very expensive environmental management problem and one with considerable risks.

The other matter to be aware of is the worldwide trend towards increasing failure of tailings dams. Experts have noted the increasing trend of the number of very serious tailings failures per decade, with projections for 2020-2029 decade of 17 serious failures. In the words of mine tailings expert Lindsay Bowker:

As grades have fallen globally across all minerals, the rate of failure per million tonnes of ore mined has increased. The waste volume and the characteristics of waste are pushing the world's existing portfolio of some 8,000 tailings facilities beyond design limits and capacity with seat of the pants unproven schemes to stretch existing capacity.<sup>23</sup>

The concerns of Sepik communities about tailings failures affecting their river is therefore very realistic, especially in the light of very little details from the company about how it plans to mitigate the problem.

# The Upper Sepik awareness tour

## **The overall finding from the awareness tour was that all the villages visited registered opposition to the Frieda River mine going ahead.**

In October 2018 a team conducted an awareness tour of villages on the Upper Sepik. The seven-member team included officials from Project Sepik (co-publisher of this report).

The awareness tour started at Iniok, which is right next to the confluence of the Frieda and the Sepik, downstream all the way to Avatip (see map below). In all, 23 villages were visited. Some of the smaller villages were visited collectively as a group to form a larger number of people. Therefore, for the purpose of the tour, there were 18 separate meetings held with villages along the river.

The aims of the tour were threefold. (1) to determine what impacts that the people living in the villages of the Upper Sepik had observed on their local environment; (2) To ascertain the attitude of each village towards the planned Frieda River Mine; (3) To share the concerns of Project Sepik about the impacts that the mine might have on the Sepik region.

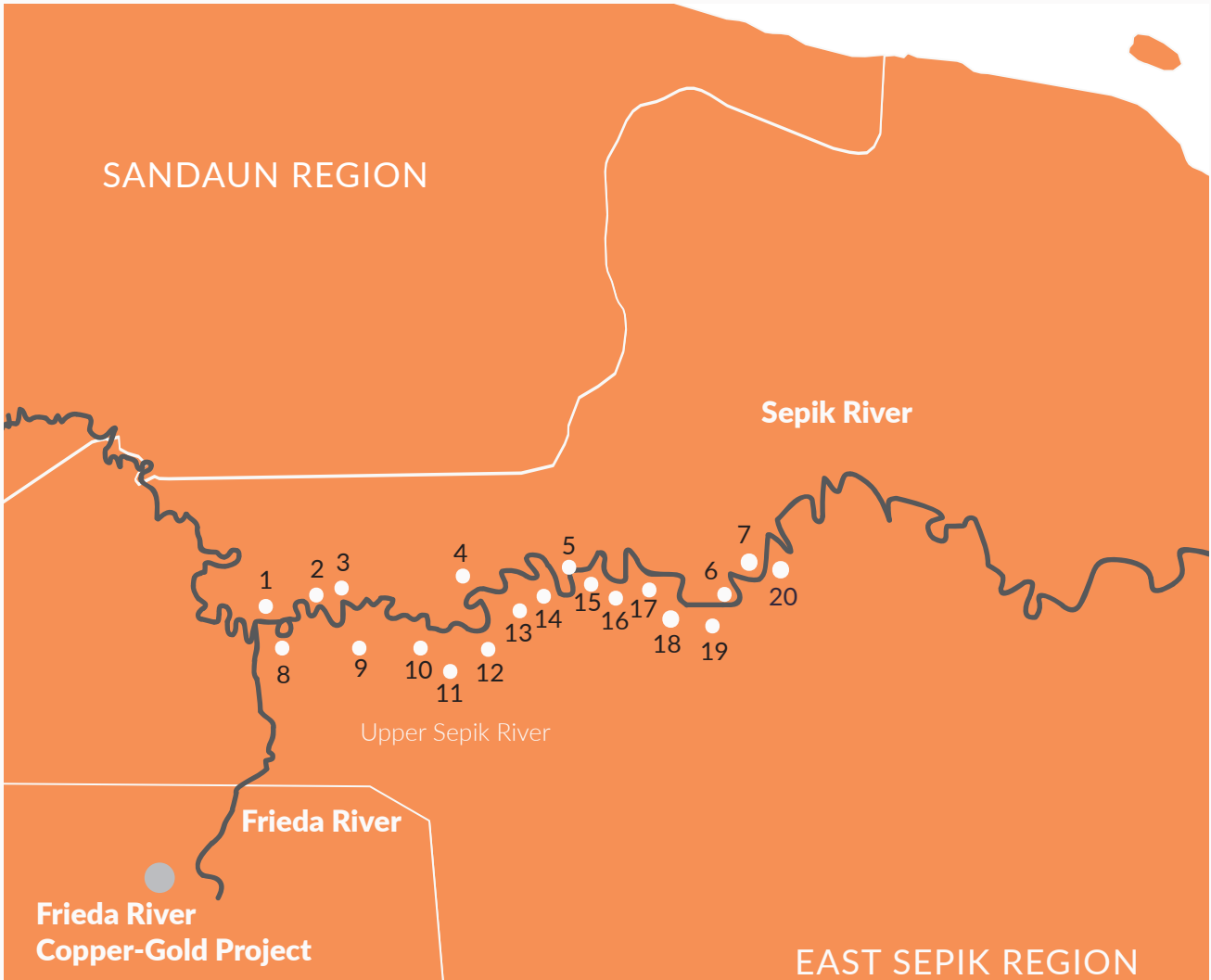
Attendances at the meeting varied according to the size of the villages. Large numbers of people attended at the bigger villages, such as Ambunti (200), Hauna (150), Oum 2 (124), Yassan/Maio (78), Apan (71), Iniok (70), and Pupkain (60). The other villages listed attendances were small (under 50).

In most cases during this tour, the leader of a village represented the concerns of the people and was the primary spokesperson. If the village leader was away, other spokespeople took his place. Leadership in the Sepik, as in most parts of PNG, is generally associated with age. Therefore, the senior person/people in the village tend to hold leadership position, as do traditional chiefs and church leaders. Another source of leadership

is those who hold elected positions e.g. Ward Councillors, Ward Presidents or Ward Recorders. In every situation of decision making, the essential aspect is that leaders' opinions are offered in the presence of their people. The decisions are made also from the collective voices of those present in the organised setting. This is why the team conducted public meetings, so that those in leadership positions would be sure of representing the thinking and feelings of the villagers towards the mine.

The overall finding from the awareness tour was that all the villages visited registered opposition to the Frieda River Mine going ahead. The majority of community members took this position because of concerns about the impact that the mine would have on the health of the river, which they saw as the source of their livelihood. It was clear from their reactions that communities already held these concerns prior to the visit of the team, although the visit often served to reinforce already strongly-held opinions. However, within this general trend, it is necessary to make one caveat. Opposition of some upstream communities nearer to the Frieda River junction (e.g. Tauri and Iniok, Oum 1 and Oum 2) took this position mostly because they felt excluded from the benefits of the mine. In other words, before the arrival of the team, they were less knowledgeable and concerned about the potential environmental impacts. For these particular communities, the team visit might be said to have performed an educative role.

A fuller discussion of the concerns about the impact of the mine on the river environment and the question of community consent are discussed in more detail in the sections to come.



Map 2: Villages visited during the Upper Sepik awareness tour

**KEYS TO MAP**

- INCREASED SEDIMENTATION IN RIVER
- ▾ FISH POPULATION SUFFERED
- SOIL EROSION/GARDENS DAMAGED
- ✕ EXPRESSED OPPOSITION TO THE MINE
- REDUCTION/POOR HEALTH
- /// COMMUNITY LEADERS AWAY

1. Iniok	□ ▾ ✕	11. Biaga	✕
2. Oum 1	□ ▾ ● ✕	12. Yamenembu	□ ▾ ✕
3. Oum 2	□ ▾ ● ✕	13. Swagap	□ ✕
4. Waskut	□ ▾ ✕	14. Baku	▾ ✕
5. Yessan	▾ ✕	15. Kumbawel	▾ ✕
6. Ambunti	✕	16. Kamanjau	✕
7. Malu	///	17. Prukunawi	✕
8. Tauri	▾ ✕	18. Yambun	□ ▾ ✕
9. Hauna	□ ▾ ● ✕	19. Apan	✕
10. Kupkain	□ ✕	20. Avatip	///

# Environmental concerns

## Fish population and health

One of the strong themes that came across from the awareness visits was the concern about impacts that are already being experienced on the river as a result of increasing use and traffic. At 9 of the 18 meetings, people noted an increase in sedimentation and a resulting decline in water quality. The frequent movement of tugboats on the river was seen to be a cause of this, either directly, or, more often indirectly, through an increase in sedimentation.

Many communities observed a decline in local fish stocks which they attributed to increased sedimentation. 11 of the 18 meetings mentioned concerns about the health and/or the population of fish and other aquatic species. Many respondents mentioned sores in the guts of the fish which had not been observed in the past. Some mentioned

concerns about reduction in numbers of especially traditional species and of the local crocodile populations.

Regardless of the cause of this impact on fish populations, communities are very concerned that sedimentation would increase and the water quality would decrease further once the Frieda River mine commenced production. Likewise, it was commonly felt that the health of the fish and other populations would suffer further declines.

One comment from a villager from Wanjir demonstrates how these concerns were connected:

‘Our fish have been showing signs of illness. Our fish are not healthy, our fish are sick. We see sores on and inside our fish. Our Sepik River and all other waters will not be deep enough as a result of sedimentation and therefore, our Flora and fauna

*Children of the Sepik © Zephaniah Aaron Winduo*





**‘We have made up our mind that the Frieda Mine MUST NOT operate. [...] Sepik River is here, that is why we are alive. If the Sepik River is destroyed than that means we will all will be destroyed too.’**  
Villager from Yamenembu

will be destroyed. Our crocodiles will disappear [if the mine happens].’

A further example was given by a village court magistrate at Hauna:

‘I caught a Javacap fish several days ago. The fish had sores at its back and undersides. When I cut open the fish with a knife, there was a stone inside it including more sores. The stone was the size of my finger. I keep the stone in my house. I requested for a news reporter to go see this and also listen to other stories and write up and report it so the world can know what is happening in our home.’

### Cultivation of sago and gardens

The increased sedimentation was not the only concern; communities were equally worried about the increased flooding and erosion of the riverbanks.

The combination of sedimentation and decay of the riverbanks was observed by many to be impacting cultivation of sago (apart from fish, the other staple in the diet) and other fruit and vegetables.

As a ward member from Hauna observed:

‘In the past when we plant food crops out at the gardens next to Sepik river, our crops survived flooding but nowadays, all gardens, including those further away from the banks of the river are usually covered in mud and all crops die.’

Expectation that these will worsen if the mine goes ahead

There are some suggestions that the decline in the river health preceded the recent exploration and other activities associated with the Frieda Mine. One leader from Yassan/Maio, who was born in 1949, observed that the decline in the river health began in the 1980s. The poor health of the river could be due to other extractive industries, including logging; it could be due to the changes to the ecosystem as a result of the introduction of non-native fish species and flora; some of the flooding could even be a result of climate change.

Nevertheless, if the evidence of the awareness tour is anything to go by, the communities visited have made up their mind that they see the mine as a serious danger not just to the health of the river, but to themselves and their way of life. There is a strongly held belief that the health of the river will further decline if the Frieda mine operates. The connection between the proposed Frieda mine and these issues is summed up in comments from a villager from Yamenembu:

‘We have made up our mind that the Frieda Mine MUST NOT operate. The Government has to recognise Sepik River, its tributaries and lakes. The government must know that the RIVER system has been feeding us, it has not been the Government. Sepik River is here, that is why we are alive. If the Sepik River is destroyed than that means we will all will be destroyed too.’

# Consultation, consent and resistance

## Free, Prior and Informed Consent

As was discussed in the introduction, attaining the Free, Prior and Informed Consent (FPIC) of communities is vital in ensuring that big resource projects occur in an atmosphere of social harmony and support. However, the failures of those developing previous largescale copper-gold mines to properly consult with communities downstream from the mines before commencing their projects have resulted in disasters in PNG and Melanesia more generally. For example, Glenn Banks has noted that that downstream were not consulted in cases of the Porgera and Ok Tedi mines (in PNG), nor in the case of the Grasberg mine in West Papua (thus under the Indonesia's jurisdiction) despite great controversy that followed in the wake of downstream pollution and other environmental impacts.<sup>24</sup>

Nevertheless, there are patterns of activities that point to the danger of the same mistakes with respect to the Frieda River project as has happened at Ok Tedi, Grasberg and Porgera. Certainly, the company's engagement with Frieda River communities at the mine site has been extensive. Among the initiatives it has undertaken are: Community Leadership Forums, organised visits of Frieda landowners to the Hidden Valley project (operated by its partner Highlands Pacific), collaboration with the Australian Department of Foreign Affairs and Trade in a Women in Mining Project (to allow women to participate at the Development Forum). In PanAust's own words: 'The free, prior and informed consent of landowners at PanAust's Frieda River Project in PNG is a critical element of the Company's social license to operate'.<sup>25</sup>

## Community consultation and resistance

Consultations with downstream communities has been attempted; it is questionable, however,

whether these consultations have been able to secure the communities consent.

Recent consultations for communities in the Sepik River downstream from the mine took place in October 2018. These were not the first consultations - there have been several dating back to as early as 2010 for the Xstrata prefeasibility study. Sepik communities, especially those exempt from royalties, have taken a principled stand of resistance to the mine from the word go. Having seen development promises from mining companies broken in other parts of PNG, they are sceptical about both company and government claims about the new public services and infrastructure that will follow.

By October 2018, the mood among communities on the Sepik was that their legitimate concerns about the impact of the mine on their river were not being seriously considered. Unsurprisingly, significant numbers of villages and communities shunned the Frieda Mine and Government team during the recent consultation. Communities reported to the Project Sepik team that any sort of consultation at this point could only be tokenistic at best. Communities were also frustrated that many previous consultations have taken place and that their concerns, fears and needs were not responded to.

An example of this type of non-participation is from the village of Inlok village, at the mouth of Sepik River. Villagers demonstrated their displeasure with the consultation by restricting participation to a small number of people. Those who did come harassed the consultants with hostile and critical questions.

In some villages, this non-participation was combined with outright hostility and aggression. The consultation team was threatened at Kupkain, at Swagap (where the team was ordered to leave). In Ambunti, out of the population of about 3000 plus people, not more than 30 men only showed up

**‘The people are still really scared of the police. They want to do a peaceful protest and block off their land and the river but are still very scared of the police. The police do not go and talk but have usually gone in to shoot at the villages and burn their houses. The Police are known for their violence.’**

**Emmanuel Peni, Project Sepik**

and asked questions and threatened the people of PanAust Community Affairs and PNG Government Officers.

So angry and disempowered are some communities that they have already started resorting to acts of nuisance, sabotage and resistance against those identified as agents of the mine. In 2017 a youth leader from Oum 2 village lead a group of young men to attack a tugboat and pontoon with homemade wire sling shots. During the recent consultations, on the 19th October 2018, the people of Iniok village blocked the Frieda River with a banner saying ‘Ban Chinese Frieda Mine – Do not enter’. The police were flown on a helicopter, but no violence resulted.

In Pagwi on 1 October 2018, the men from the Niaura Area (language that defines 7 large villages in the middle river area) approached a vessel containing employees of the project and Government officials and physically and verbally threatened them. A father and son from Yamanumbu Village paddled out to the vessel in their canoes swearing at the Government and Frieda Mine Officials. The father and son team told them that the next time they visit, they would be killed by the people of the Niaura Area.

Some of these acts of resistance have been associated with threats of reprisal and violence by people who are associated with or who support the mine. In Baku in October 2017, a woman organised other women to stop large tugboats going upstream because its waves destroyed their nets and interfered with their catch. She alleges that police

officers hired by the Chinese pointed the gun at her forehead and that she and her women colleague had to paddle away.

Emmanuel Peni explains that with the perception that the law enforcement authorities are on the side of the developers, communities feel that peaceful protest is simply being met with contempt and with violence by the local authorities.

‘The people are still really scared of the police. They want to do a peaceful protest and block off their land and the river but are still very scared of the police. The police do not go and talk but have usually gone in to shoot at the villages and burn their houses. The Police are known for their violence.’

Peni himself was shot at by gunmen in broad daylight in front of the Police station in Angoram in 2010; this attack was, he believes, on account of his political stance regarding the mine.

With normal mechanisms of consultation broken down, and with peaceful protest both ineffectual and dangerous, it is little wonder that communities feel that these acts of sabotage and resistance are the only option that people have to have their feelings heard. Nevertheless, the result has been the development of a climate of fear and an uneasy standoff between sceptical communities worried about their river but also, increasingly, about their safety.

# Conclusion

Until recently, it has been the dominant narrative by the proponents that the mine enjoys popular support, and that those raising environmental concerns are simply spreading misinformed rumours. Up till now, though, there has been very little information coming out about the opinions of Sepik communities about the Frieda River mine that could counter this narrative.

The information collected on this awareness tour, although not scientifically gathered, should be enough, at the very least, to raise questions about these claims. It has also presented evidence of official intimidation of those living on the Upper Sepik who are opposed to this project.

Furthermore, this report has outlined the serious environmental risks proposed by this type of development. It is clear that the environmental issues are not cut and dried, and that the scepticism of many that the mine will be safe is indeed warranted.

Serious questions must be raised about the company's behaviour. Why has PanAust not released an Environmental Impact Assessment? Why have no details about the tailings storage facility been released? How can the company expect communities to support this venture when such vital information that could affect their environment ecosystem have not been realised?

Reports of police intimidation of anti-mining activists should also be of great concern. If these reports are true, and we have no reason to believe they are not, they suggest an atmosphere of unrest and violence into which the introduction of a large and controversial extractive project would seem imprudent.

It should be worth noting once again that Chinese mining companies acting abroad are expected to adhere both the UN Guiding Principles on Business and Human Rights and to the guidelines around the principle of Free, Prior and Informed Consent (FPIC). The latter is also a requirement of PNG law.

Finally, because PanAust is an ASX-listed company, it is entirely appropriate to ask whether PanAust is acting in accordance with the requirements of

companies that are based there, and which enjoy the protections afforded by Australian law and commerce.

In November 2018, East Sepik Governor Alan Bird indicated that concerns from Sepik communities may be causing a change of stance with respect to the Frieda River Mine:

'Finally, I have requested PanAust to slow down the mine development program and give us time to seek the views of all affected groups in Sepik. It is important that we do not rush into Frieda because Wafi Golpu is currently going through some challenges. There could be some valuable lessons there.

In terms of time tables, mining is NOT likely to commence until 2028. This gives us plenty of time to review the Frieda data this year, analyse it and make an informed, truthful and transparent decision. I expect the recommendation to be presented in the Assembly for debate once completed.'<sup>26</sup>

Given the social tensions that are apparent, the Governor's call to slow things down should be welcomed. But if large numbers of Sepik communities remain opposed to the mine on the grounds that it is not the sort of development they want for their land, their people and their river, proceeding with it would mean imposing this development on them without their consent, an outcome that must be avoided.

# Endnotes

1. Papua New Guinea Today, 'Sepik Leaders Support Frieda River Mine', 19 January 2019, <https://news.pngfacts.com/2019/01/sepik-leaders-support-frieda-river-mine.html>
- Matthew Vari, 'O'Neill Clarifies Papua LNG, Wafi-Golpu MoUs', *Post Courier*, 5 February 2019, <https://postcourier.com.pg/oneill-clarifies-papua-lng-wafi-golpu-mous/>
2. Paul Flanagan, 'The Distorting Effects of the Resources Sector on National Economies: A Case Study from Papua New Guinea', *Growing Bougainville's Future*, Jubilee Australia Research Centre, 42-49.
3. Glenn Banks, 'Mining and the Environment in Melanesia: Contemporary Debates Reviewed', *The Contemporary Pacific* 14(1), Spring 2002, 39-67.
4. Jubilee Australia Research Centre, 'Voices of Bougainville: Nikana Kangsi, Nikana Dong (Our Land, Our Future)', September 2014, <https://www.jubileeaustralia.org/LiteratureRetrieve.aspx?ID=139150>.
- Keren Adams, 'Nowhere to Turn: Addressing Australian corporate abuses overseas', Human Rights Law Centre, December 2018, <https://static1.squarespace.com/static/580025f66b8f5b2dabbe4291/t/5c1aa50a8a922db8f09e5c1b/1545250097352/Nowhere+to+Turn.pdf>, 23.
5. Susan Schulman, 'The \$100bn gold mine and the West Papuans who say they are counting the cost', *The Guardian*, 2 November 2016: <https://www.theguardian.com/global-development/2016/nov/02/100-bn-dollar-gold-mine-west-papuans-say-they-are-counting-the-cost-indonesia>
6. Cathal Doyle, 'Free, Prior and Informed Consent, Development and Mining on Bougainville: Choice and the Pursuit of Self-Determined Development' in *Growing Bougainville's Future*, Jubilee Australia Research Centre, 68-76.
7. This section has been drawn largely from Erik K. Silverman, 'The Sepik River, Papua New Guinea: Nourishing Tradition and Modern Catastrophe', in John R. Wagner and Jerry K. Jacka (eds), *Island Rivers* (ANU Press: Canberra, 2018) as well as from contributions by Elizabeth Cox, a long-time Sepik resident. For the pre-colonial economic history, see Hauser-Schäublin, Brigitta. 1977. *Frauen in Kararau: Zur Rolle der Frau bei den Iatmul am Mittelsepik, Papua New Guinea*. Basel: Ethnologisches Seminar der Universität und Museum für Völkerkunde.
8. Some commentators such as Erik Silverman have argued that many Sepik people have an ambivalent relationship to the river and to their perceived lack of 'development'. According to Erik Silverman, 'Eastern Iatmul see [their] continued reliance on the Sepik not as a trophy of noble self-sufficiency but as a daily reminder of their thwarted desires to attain modernity'.
9. Shen Narayanasamy, 'Banking on Shaky Ground: Australia's Big Four Banks and Land Grabs', *Oxfam Australia*, 2014, [https://www.oxfam.org.au/wp-content/uploads/site-media/pdf/2014-47%20australia's%20big%204%20banks%20and%20land%20grabs\\_fa\\_web.pdf](https://www.oxfam.org.au/wp-content/uploads/site-media/pdf/2014-47%20australia's%20big%204%20banks%20and%20land%20grabs_fa_web.pdf)
10. Xtrada Frieda River Limited, Environmental Inception Report: Frieda River Project, September 2009. The the recent logging activities in Sepik see [https://www.oxfam.org.au/wp-content/uploads/site-media/pdf/2014-47%20australia's%20big%204%20banks%20and%20land%20grabs\\_fa\\_web.pdf](https://www.oxfam.org.au/wp-content/uploads/site-media/pdf/2014-47%20australia's%20big%204%20banks%20and%20land%20grabs_fa_web.pdf)
11. 'Frieda River Copper-Gold Project feasibility study update, new Mineral and Ore Reserve estimates', *PanAust Company Announcement*, 4 May 2017.
12. 'Frieda River Copper Gold Feasibility Study Update', *PanAust Company Announcement*, 4 May 2017, [https://panaust.com.au/sites/default/files/20170504\\_Frieda%20River%20Copper-Gold%20Project%20feasibility%20study%20update\\_new%20Mineral%20Resource%20and%20Ore%20Reserves%20estimates\\_FINAL.pdf](https://panaust.com.au/sites/default/files/20170504_Frieda%20River%20Copper-Gold%20Project%20feasibility%20study%20update_new%20Mineral%20Resource%20and%20Ore%20Reserves%20estimates_FINAL.pdf)
13. PanAust Operations, PanAust website, <https://panaust.com.au/phu-kham-copper-gold-operation>
14. Wendy Wu, 'Probe Deepens into state firm Guandong Rising's loss-making Australian mining deals', *South China Morning Post*, 14 October 2017, <https://www.scmp.com/news/china/economy/article/2115380/probe-deepens-state-firm-guangdong-risings-loss-making-australian>
15. 'Frieda River Copper Gold Project Ore Reserve Update', *PanAust Company Announcement*, 10 December 2018, & 'World Class Frieda River Mine Moves a Step Closer to Development', PNG Resources, 10 December 2018: <http://pngresourcesonline.com/world-class-frieda-river-project-moves-big-step-closer-development/>
16. 'Sepik leaders support Frieda River Mine Project', *Papua New Guinea Today*, 19 January 2019,

- <https://news.pngfacts.com/2019/01/sepik-leaders-support-frieda-river-mine.html>
17. 'Bird Needs More Views on Frieda Mine', *Post Courier*, 17 January 2019.
  18. Inclusive Development International, *Safeguarding the People and the Environment in Chinese Investments (Second Edition): A Reference Guide for Advocates*, 2019, pp. 60-65. [https://www.inclusivedevelopment.net/wp-content/uploads/2019/05/2019\\_IDI\\_China-Safeguards-Guide-FINAL.pdf](https://www.inclusivedevelopment.net/wp-content/uploads/2019/05/2019_IDI_China-Safeguards-Guide-FINAL.pdf)
  19. Jan G. Laitos, Cyanide, Mining and the Environment, *Pace Environmental Law* 30(3), Summer 2013, 869-949.
  20. 'Special Mine Lease application submitted for the Frieda River Copper-Gold Project, PNG', *PanAust Company Announcement*, 24 June 2016
  21. 'Environmental Impact Statement Lodged for the Frieda River Copper-Gold Project, PNG', *PanAust Company Announcement*, 21 December 2016, [https://panaust.com.au/sites/default/files/201612\\_EIS%20lodged%20for%20the%20Frieda%20River%20Copper%20Gold%20Project\\_PNG\\_FINAL\\_2.pdf](https://panaust.com.au/sites/default/files/201612_EIS%20lodged%20for%20the%20Frieda%20River%20Copper%20Gold%20Project_PNG_FINAL_2.pdf)
  22. 'Sepik Development Project Environmental Impact Statement delivered to provincial authorities and landowning communities', *PanAust Company Announcement*, 15 April 2019, <https://panaust.com.au/sites/default/files/Sepik%20Development%20Project%20Environmental%20Impact%20Statement%20delivered%20to%20provincial%20authorities%20and%20landowning%20communities.pdf>
  23. 'Sepik leaders support Frieda River Mine Project', *Papua New Guinea Today*, 19 January 2019, <https://news.pngfacts.com/2019/01/sepik-leaders-support-frieda-river-mine.html>, 'Bird Needs More Views on Frieda Mine', *Post Courier*, 17 January 2019.
  24. Lindsay Newland Bowker, 'Environmental Risk in a Context of the Global Economic Causes & Consequences of Tailings Failures: A Presentation for UBS Mining Investment Research', *World Mine Tailings Failures*, February 2019.
  25. Glenn Banks, 'Mining and the Environment in Melanesia: Contemporary Debates Reviewed', *The Contemporary Pacific* 14(1), Spring 2002, 39-67.
  26. PanAust, 2016 Annual Report, 47.
  27. 'Bird Needs More Views on Frieda Mine,' *Post Courier*, 17 January 2018, <https://postcourier.com.pg/bird-needs-views-frieda-mine/>



