

**Press review:
Mining in the South Pacific**

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Abbreviations in common use:

BCL: Bougainville Copper Limited

LNG: Liquid Natural Gas

PIR: Pacific Islands Report

PNG: Papua New Guinea

Websites:

Radio New Zealand: <http://www.radionz.co.nz/international>

PNG Post-Courier: <http://postcourier.com.pg/>

PNG National: <http://www.thenational.com.pg/>

Porgera killing fields

BY MIRIAM ZARRIGA, Post-Courier, 28 April 2023

The successful restart of the New Porgera Limited gold mine is currently at high risk due to the security situation in the valley. This is because since March 6, 21 people have died as Porgera, Enga Province, turned into a killing field amid tensions between two ethnic groups, the Nomali and Ai-yala. Barrick Gold CEO and president, Dr Mark Bristow responded to questions raised by the Post-Courier saying that “a safe and stable operating environment is critical for the restart of Porgera Mine. Therefore, we see a need for an immediate intervention to address the lawlessness in Porgera as the current conditions put in jeopardy the restart of mining operations”. He said: “Safety is paramount at the Porgera mine site. Our primary concern is the welfare of our local employees who reside in Porgera and commute to and from the site. As with the rest of the community, we rely on the police and other law enforcement agencies to provide law and order.

Our local employees are directly impacted by the ongoing violence and the resulting closure of vital government services, including schools and hospitals. “We support the community’s calls for a

special police operation and sustainable security solutions to the many social issues that have grown since the mine was placed into care and maintenance, including tribal violence and murder, kidnapping, hijacking, vandalism, and the widespread proliferation of high-powered firearms.” Losses from illegal mining and theft are estimated at K100 million per year and K200 million from Hides Tower Lines sabotage and not including sizeable PJV security costs and the substantial ongoing costs for constant repair of fences, buildings, vehicles and other equipment and infrastructure. Speaking to the Post-Courier on Thursday morning, Police Commissioner David Manning said that the focus of security personnel would be to secure the surrounding communities of the mine site. Commissioner Manning also confirmed the deployment of an extra 100 Special Services Division (SSD) members to assist in curbing the rise in crime but also assisting in restoring normalcy.

“We are ready to assist, and I have had briefings with the local leaders and we will be working closely with the district development authority (DDA) to ensure we have the support but also work together in bringing back peace to Porgera,” he said. A security brief released on Wednesday, April 26 has shown that the high number of killings are in the town area. As of Wednesday critical community services such as the BSP Bank, Paiam Hospital and local schools are now closed again indefinitely. The law and order crisis applies to the whole Porgera Valley and not just the mine site and its infrastructure – this also extends to other operational footprints (Hides Power Station, HTL Corridor, Riverine, and Highlands Highway). Law and order is at the lowest point ever since the opening of the mine, and which is affecting the operation of the mine, landowners, and the communities. A security update from the district has reported:

- Continued deterioration of security (law and order) in the Porgera valley,
- Firearms sightings and discharges within SML/LMP continue to increase,
- Multiple instances of armed holdups and theft from employees and contractors. Since January 2023 a number of supply trucks and passenger buses have been ambushed and looted between Laigam and Kairik Airport,
- Security incidents involving the kidnapping of women and children have increased,
- Effectiveness of MS and PNG Defence Force personnel on the ground is limited due to the absence of necessary resources and specific orders, and
- Tribal fighting throughout the Valley and at Hides continues, with ongoing fatalities and widespread property destruction.

The Post-Courier understands that local police numbers are down, firearms are used regularly within the valley and intrusions into restricted areas continue with armed men entering the mine site. It is alleged there is a lack of support from the district, province and the National Government for more security forces at Porgera. The lack of leadership and support from community leaders and landowners have seen criminal elements protected and served by the clan and communities.

6 killed in Porgera

By NATHAN WOTI, April 28, 2023, The National

PORGERA in Enga is in disarray following the killing of six people on Wednesday night, forcing the closure of schools and businesses as the “guerilla warfare” continues. Porgera gold mine Lease for Mining Purpose Landowner Association chairman Timothy Andambo said it was more like an ethnic cleansing than a tribal war. “The situation is escalating into the Paiam mine town and Porgera station,” he said. “And not long, it will go into the Porgera Joint Venture area where mine workers live. “We have received threats from Facebook and text messages to hang us if we do not resolve the fight.” “But how can we go in and resolve it when these men are trying to kill us? “They have already slaughtered community leaders, women and children. “We are in fear of our lives.” Efforts to get comments from provincial police commander acting Supt George Kakas were

unsuccessful. Shops, markets, schools and banks in the area have closed. “Bank of South Pacific employees left yesterday in fear of their lives,” Andambo said.



Some of the women and children who joined the peaceful protest staged in Porgera, Enga, yesterday

Andambo urged the Government to immediately declare a State of Emergency in the province, giving power to the police and Defence Force to end the “inhumane violence”. He said the fight started four years ago between the two groups over a Digicel network grid tower, and now had spread all over the district. LMP association deputy chairman Joe Kuala said the safety of the people and the mine were a concern. “The mine is our only bread and butter. Before the Government can restart the mine, it must address the issue on the ground,” he said. “Porgera is unsettled. Yesterday, women and young men walked from one end of the town to the other, calling for the violence to end.” He said it had become a national issue, and not just for the community leaders to resolve. Kuala said the two opposing groups are moving into the town.

Barrick to stay on mine site

BY DALE LUMA, Post-Courier, 27 April 2022

Barrick Niugini Limited (BNL) is to remain onsite the Porgera gold mine in Enga Province and provide care and maintenance, according to the miner. This is in accordance with the Porgera Project

Commencement Agreement (PPCA) signed last year. The company said this in responses to questions from the Post-Courier following comments on various forums that landowners had given BNL 14 days to vacate and taken a Trespass Notice Warning under the Lands Act to restrict Barrick from accessing the Porgera Mine (Area 11). This paper understands that last year, care and maintenance cost of the mine had gone up to US\$12 million per month (K6.7 million per month). Monday marked three years of care and maintenance operations.

“Under the Porgera Project Commencement Agreement, all parties (including the State and Mineral Resources Enga Limited) agreed that Barrick Niugini was to remain in possession of the Porgera mine site and would continue to maintain the mine on a care and maintenance basis until ‘New Porgera’ commences (which will happen upon the grant of the new SML and satisfaction of the other conditions to mine restart under the PPCA),” a BNL spokesperson said. “So any suggestion that we are trespassing on the land is simply wrong and inconsistent with the PPCA signed. “The New Porgera Progress Agreement which was signed on 31 March, 2023 between the State, Barrick Niugini and New Porgera Limited does not change the right of landowners to participate in New Porgera Limited under the PPCA or otherwise change their rights at law. “The New Porgera Progress Agreement recorded the recommitment of the parties to reopening the mine on the terms agreed in the PPCA, which will be to the benefit of all stakeholders including landowners,” the spokesperson said.

Trespass notice issued to Barrick with K400 million compo claim

BY JEFFERY ELAPA, Post-Courier, 27 April 2023

The issue of the resumption of the Porgera gold mine in the Enga Province is far from over, as the landowners have given 14 days trespass notice to Barrick and a demand of K400 million as compensation. The landowners represented by the former MP for Lagaip-Porgera and paramount landowner chief who signed the 1989 Porgera agreement, Nixon Mangape, said the landowners have given Barrick 14 days as of last Thursday and that ended on Wednesday this week. The trespass notice is to stop Barrick and its employees from occupying and trespassing on the land which is now a customary land after the expiry of the old Porgera SML one. He said before the expiry of the 14 days, the landowners demand for a roundtable meeting to discuss the issues of:

- Warden hearing for a new mining lease tenement,
- Land Compensation Agreement,
- Resettlement Agreements,
- Legacy issues of environmental pollution, and
- Agreement on business spinoff.

“We have to talk about these issues first before we go for the development forum. We are demanding K100 million each year since 2019 as compensation,” Mr Mangape said. He said the commencement agreement signed by Barrick and KMHL is only to get the process to open the mine. On Friday last week, Barrick Niugini Limited and the state, through Kumul Mineral Holding Limited, transferred the special mining lease and exploration licence to the New Porgera Limited. However, Mr Mangape said with the expiry of the old SML 1 on April 20, 2019, the land reverts back to the landowners. He said as per the Mining Act of 1992, the warden hearing should be held for the new Porgera and the issuance of a new SML 11 licence. He said the notice was issued under the Land Act 1992 sections 144, 145 and 146 banning the parties mentioned from entering the premises.

“I call for a roundtable discussion before Thursday next week, as failure to adhere to the notice would force us to go to the court to obtain an order to restrain Barrick and its agents from

occupying the land without resolving the five outstanding issues,” Mr Mangape said. “We have suffered for the last 30 years and Barrick and the state must not brush the issues aside. “We support the call by Prime Minister James Marape to take back PNG, and Barrick should not intimidate the state and dictate to the Prime Minister with an international arbitration. Why did it fail to pay tax for the past 30 years? It must pay its dues and address all the outstanding issues going forward.”

Landowner calls for drastic action in Porgera

By PETER ESILA, April 27, 2023, The National

PORGERA gold mine Special Mining Lease principal landowner Nixon Mangape says people are sick and tired of the law and order issues in the district. Mangape said police and security personnel needed to be allowed to use lethal force against armed criminals who threatened the peace and stability to ensure the mine reopened and operations were not disrupted. “Just shoot them, even the war lords, and arrest those people carrying weapons in public places; the issue is manpower and funding,” Mangape said. “We tell them to stop but they are not listening, just the other day, about 10 people were killed during a fight, it is ongoing and this is not good. “We need to restore confidence back in the valley. “I want the Government to put more manpower on the ground and give the order for police to shoot to kill whoever carries a dangerous weapon. Enough is enough, innocent people are being killed, women are being raped. “We need action,” he said. Mangape called on the Government to have an emergency National Executive Council meeting to address the law and order issue before it affected the mine’s operations.

Miner allocates K20mil for social, community initiatives

April 27, 2023, The National Business



Some of the recipients of the K92 Mining Inc scholarship who were invited to meet the company's board of directors last weekend. From left: Kurie Endopio, Lugina Urquhart, Violet McMiul (University of PNG) and John Edimani (Unitech).
— Nationalpic by NATHAN WOTI

K92 Mining Inc has a total of K20 million under its tax credit scheme which the company intends to invest in social and community initiatives. One of these initiatives which the miner is proud to showcase is its scholarship of five tertiary students under its tertiary students scholarship programme. K92 Mine board chairman Anne Giardini said the company prided itself on encouraging “positive social development” which was crucial for the country. “We’re mindful of the need in the community and our engagement with the impacted landowners, as well as the people of Papua New Guinea, who by all means, deserve to access benefits that come out from this company,” she said.

“One of our important initiative is the tertiary students’ scholarship programme, which is our investment in the future of this country.

“We want the mine to be for Papua New Guineans, for aspiring young people who are in tertiary schools to see K92 as theirs and take this mining company forward in the future.” Giardini said the miner believed in the power of education and its positive impact on the prosperity and development of the country as demonstrated in numerous programmes at the mine site, local communities and educational institutions. Meanwhile, K92 Mine chief executive officer (CEO) John Lewins said people needed to appreciate what the Government was doing in trying to support the country and increase opportunity for investments.

Lewins said the tax credit scheme under the Mining Act (1992) was one of the best mining laws in the world. “Our tax credit scheme in the Mining Act is one of the best policies out of any mining company,” he said. “It is important in the sense that it requires mining resource companies to take more responsibility in the areas where we operate. “K92 Mine has about K20 million under the tax credit scheme which we will use to support our community projects in impacted areas, and fund our social programmes this year.” Lewins said people tended to blame the Government for not doing enough but failed to understand that it had been consistent with its economic agenda.

Fosterville South Exploration to Acquire Mineral Exploration Land Package

Post-Courier, 27 April 2023

Fosterville South Exploration Ltd is pleased to announce that it has entered into an agreement with privately held Wild Dog Resources Inc (WDR) to acquire a significant 2166 sq. km mineral exploration land package in Papua New Guinea (PNG) including multiple exploration licences (EL) and exploration license applications (ELAs). The total PNG land package to be acquired by Fosterville South Exploration Ltd (FSX) includes both early stage and advanced stage exploration targets with high grade epithermal vein and porphyry style mineralisation present. FSX has a significant cash position and therefore post-transaction will be well positioned to advance these projects on the ground following up the substantial amount of fieldwork and development of drill targets already completed by WDR over the past two years.

FSX team members have significant experience operating within Southeast Asian Island arc epithermal and porphyry mineralisation environments, and specifically in PNG. FSX CEO Bryan Slusarchuk said: “Papua New Guinea is home to multiple world class mining, development and exploration projects and the country hosts some of the most incredible geology on earth. “Through the rapid growth of K92 Mining in PNG, the recent announcement regarding Wafi-Golpu moving forward and of course the ongoing corporate discussions between Newmont and Newcrest, the amazing mineral potential of PNG is becoming more widely known. “Many shareholders of FSX have invested in the PNG mining sector and we are confident they will share management’s enthusiasm for this acquisition.”

“WDR has invested significant capital and time acquiring and advancing these assets in PNG and their hard work and strong technical execution both on the ground and corporately has put in place an excellent foundation for success as we move forward.” WDR CEO Alan Martin said: “WDR has assembled a commanding land position within the heart of one of the world’s best regions for gold and copper exploration. “Putting together these projects, developing excellent community relations and then advancing targets through fieldwork has put WDR in a position to now take the next step in PNG. “Through this transaction with FSX, we are emerging as a company with a very strong cash position to deploy on the ground and a team with a track record of success in PNG within a superb share structure. “Current WDR shareholders become large shareholders of the combined entity

and we look forward to working together within this well funded entity to unlock the potential of the assets, exploring for Tier 1 Copper-Gold deposits in PNG.”

Miner sells shares in subsidiary

April 27, 2023, The National Business

QUEENSLAND miner Coppermoly Limited has sold all its shares in its subsidiary, Copper Quest PNG Ltd, to Ever Leap Services Ltd. The Copper Quest had exploration licences in West New Britain (WNB). “Following receipt of shareholder approval on April 24, 2023, the company is pleased to announce that it has now completed the sale of all its shares in Copper Quest to Ever Leap Services Limited,” managing director Dr Wanfu Huang said. “Completion of the proposed sale enables the company to focus on its highly prospective grounds for copper, gold and critical minerals in the Eastern successions of Mt Isa, Northwest Queensland, where management can more effectively progress exploration activities. “The board is grateful to our shareholders for their support in this transaction, and the company is now looking forward to bringing new discoveries at our home ground in Queensland.”

In accordance with the share sale agreement, Jian Xuan has resigned as a director of the company. Craig McPherson has been appointed as a director in addition to his role as company secretary. Coppermoly Ltd is a mineral exploration and resource development company with a portfolio of copper/gold projects in WNB. Since listing on the Australian Stock Exchange in 2007, Coppermoly’s exploration efforts have been focused on the island of New Britain, where the company held extensive highly prospective exploration territory and had major success in discovering and defining significant copper and gold deposits. The so-called “Pacific Ring of Fire” – the volcanic arc that hosts many of these deposits – extends through New Britain, where Coppermoly holds or has applications in place for a number of exploration tenements.

Developers urged to be compliant

April 27, 2023, The National Business

PETROLEUM and Energy Minister Kerenga Kua says issues pertaining to development of Papua New Guinea’s natural resources, including in particular mining and petroleum, follow prescribed legal procedures. Kua made the comments when he welcomed a National Court decision in Waigani that dismissed a case by Twinza Oil (PNG) Ltd concerning its petroleum development licence (PDL) application for the Pasca project in Gulf. “All procedures, including the filing of an application for a licence, the information gathering process for a judicious determination of the application, the determination of PAB, and a recommendation made to the minister, must all take place in the appropriate sequential order,” he said. He said the matter needed to revert back to being appropriately processed strictly within provisions of Oil and Gas Act. “Because Twinza Oil has already provided answers to the request for further information and better particulars, those answers will now be evaluated, and a summary provided to PAB,” he said.

“PAB will then sit to consider an appropriate recommendation for the minister’s determination. “These procedures will now be evoked having regard to the fact that the judicial proceedings have been dismissed and the stay order has now been fully discharged.” Judge Nicholas Miviri, in his decision on April 13, dismissed Twinza’s judicial review stating that the company, by its own conduct, had demonstrated that there was no cause for alarm to maintain the process in court. Twinza had filed a judicial review after it was issued a purported instrument under Section 54(2) of the Oil and Gas Act (1998) to furnish additional information and such proposals in connection with its application for a petroleum development licence No14 (APDL14). The instrument was issued by

Petroleum and Energy secretary David Manau last April 7 in his capacity as director under the Oil and Gas Act. The instrument for additional information requested by Manau included the assertion that Twinza was a tax haven company registered in the British Virgin Islands.

Twinza, aggrieved by Manau's instrument, filed a case in the National Court and named Manau, Kua and the State as defendants in the case. Twinza argued that the instrument by Manau was invalid because the information and the proposal requested did not have any relevance to its PDL application therefore, it refused to provide the information requested. Twinza also obtained a stay order concerning Manau's instrument. However, Judge Miviri, in his decision, found that Twinza had acquiesced and provided the information requested by Manau via the instrument last April 28. "This is in light of the fact that Twinza had a stay in their favour not to divulge or heed section 54 (2) of the Oil and Gas Act at the discretion of the director (Manau)," he said. "Here, they have opted to heed and volunteer that information even in the face of a stay order they had obtained against the director." Judge Miviri said rather than wait out the court process, Twinza provided to Manau the information, in defiance of the stay order. He dismissed the case, including Twinza's stay order.

Landowners to pursue Rio Tinto case

BY PETERSON TSERAHA, Post-Courier, 26 April 2023

Rio Tinto will still need to compensate the people of Bougainville and their case will still be pursued. This time it is likely to be in an English courtroom. Last week, Friday, landowners and clan leaders from North, Central and South Bougainville all convened in Arawa to meet and sign a form as an authority to act, authorising Sydney-based Levitt Robinson solicitors headed by Stewart Levitt to take their case. The landowners, mainly from Panguna, were led by two outspoken Bougainville crisis veterans, former Bougainville Revolutionary Army general Sam Kauona and former Mekamui defence force commander, Moses Pipiro. Mr Kauona speaking to the Post-Courier in Arawa said Rio Tinto turned Bougainville into a trophy island back in the 1960s and the atrocities during the Bougainville crisis must still be accounted for and Bougainvilleans will keep on fighting.

"While making my presentation to the lawyers, I clearly stated out the whole history of Rio Tinto when they set foot on Bougainville and how they divided us and selected certain parts of Bougainville to be mined by other countries, as if Rio Tinto owned our country," Mr Kauona said. Mr Pipiro thanked Levitt Robinson solicitors for coming to Bougainville and for meeting the landowners face-to-face and discuss the issue. "We started this. We will finish it and we will make sure that the legacy of our late leader, Francis Ona, will still live on no matter what, and nothing will stop us from taking the culprit, Rio Tinto, to court. This time we will nail them," Mr Pipiro said.

In a written statement given to the Post-Courier in Arawa, Levitt Robinson solicitors said that they are "pleased to be able to provide our services to the people of Bougainville and particularly, from the Panguna region, who want to exercise their individual rights to claim compensation for the terrible wrongs they have suffered and continue to suffer as a result of the unconscionable way that the Panguna Mine was operated". "The Civil War wrought a terrible toll on the population. Financial compensation and remediation of the damage which, even now, contaminates their land and pollutes their waterways, is not enough. They want the truth to be told," the firm stated. "We are partnering with a UK law firm to ensure that the culprits are held to account in an English court."

Wafi-Golpu FID deadline

BY DALE LUMA, Post-Courier, 26 April 2023

The 30 months deadline for a Final Investment Decision (FID) on the Wafi-Golpu project in Morobe will start once the Special Mining Lease (SML) is granted by the state, according to Wafi-Golpu Joint Venture (WGJV). Head of external affairs David Wissink told the Post-Courier that this will come after the Mining Development Contract (MDC) is formalised. This paper understands the framework for this particular project is different as the SML will be given early for the developers to reach a FID within 30 months or the SML will be taken back by the State. “That’s the timeframe we have agreed with the state so that’s where we are working towards but we have to get to the MDC process first and then they will issue the SML and once they issue the SML, then the 30 months starts,” Mr Wissink said. “It is something that we have discussed and is part of the MOU as a mutual decision that we have made with the state.

“We have the framework MOU which really is the precursor to the mining development contract. “We are just waiting for the state negotiating team to give us a copy of the draft mining development contract and that will be the next thing we will be working on. “So you need to have a mining development contract before you get the SML.” When asked whether the DSTP (Deep Sea Tailings Placement) method is still in contention for the mine, Mr Wissink said: “It is, the project has been permitted, we have a valid environmental permit to run the project based on the activity we have applied for.” He added that all benefits for the project will be contained in the mining development contract. “We will still have develop all that with the state negotiating team. It’s an ongoing team and nothing happens overnight. We look forward to progressing the project.”

Ministers urged to support governor’s move over Mining Act

By PETER ESILA, April 26, 2023, The National Business

PORGERA Gold Mine Special Mining Lease principal landowner Nixon Mangape has urged all MPs to support New Ireland Governor Sir Julius Chan to amend the Mining Act to give more benefits to the landowners of mining projects. “I am appealing all MPs in Parliament to support the amendment of the Mining Amendment Bill 2023 to protect landowner interests,” he said. “Most third world countries are naturalising their minerals and hydrocarbon assets, if we do not do it now, who will?” The Mining Amendment Bill (2023), to be tabled by Sir Julius in the next Parliament sitting, is to protect the rights of customary landowners in project areas. The amendment (to the law) will change the ownership of mineral resources found in customary land from the State to customary landowners. Mangape said Porgera’s outstanding legacy issues were a lesson for PNG to go in the right direction this time.

Sir Julius said according to PNG’s Mining Act of 1992 all gold and minerals in or on any land in the country belonged to the State. “But that will all change if the new law is passed. “With amendments to the law, landowners will actively participate in the mining industry through exploration and extraction of their mineral resources,” he said. Under the proposed changes, the State will continue to be the regulator of mining on customary land. And in carrying out its functions, it is required to consult landowners, the provincial government and local level government where the mining activity is located. “Failure by the State to consult will result in an invalid agreement.” New Ireland deputy governor Sammy Missen said landowners are deprived of the rights to ownership of minerals and assets for too long.

New Caledonia - nickel

Radio New Zealand, 26 April 2023

The president of New Caledonia's Northern Province has accused the SLN nickel company of manipulation after it announced the suspension of operations at its mining site in Poum last week. Paul Neaoutyine said it was wrong to claim that SLN was uncertain about whether it would be granted authorisation to keep mining. He said instead, SLN violated the mining code and carried out explorations without getting approval. Neaoutyine said the actions of SLN are a worry for the many employees and threaten the sustainability of the drinking water supply in Poum. He said SLN should assume its responsibilities for the 300 people at the complex. The mayor of Poum has written to the government, alarmed at the suspension and fearing the closure of the site, which she says would be catastrophic.

Amended mining bill to protect landowners: Governor

April 24, 2023, The National Business

THE Mining Amendment Bill 2023 to be tabled by New Ireland Governor Sir Julius Chan in the next Parliament sitting is to protect the rights of customary landowners in project areas.



Sir Julius Chan

“The amendment (to the law) would change the ownership of mineral resources found within customary land from the State to customary landowners,” he said. “PNG’s Mining Act 1992 states all gold and minerals in or on any land in the country are properties of the State. But that would all change if the new law is passed. “With the amendments to the law, customary landowners will actively participate in the mining industry through exploration and extraction of their mineral resources. “Under the proposed changes, the State will continue to be the regulator of mining on customary land. “And in carrying out its functions, it is required to consult customary landowners, the provincial and local level governments within which the mining activity is located. Failure by the State or anyone to consult the customary landowners will result in an invalid agreement.” New Ireland deputy governor Sammy Missen said landowners had been deprived of the rights to ownership of minerals and assets for too long.

EHP govt to help Papua LNG landowners

Post-Courier, April 24, 2023

The Eastern Highlands Provincial Government has assisted landowners from the upcoming Papua LNG project with mobilisation fund. Governor Simon Sia, on Wednesday presented K100,000 cheque each to Subu Indigenous People’s Resource Development Association chairman Simon Tutaba and the Immanuel Meripe and his brother Amos, who are executives of Purari Gas Development, a landowner company of the nine oilheads under Petroleum Retention Licence 15 Papua LNG on Western Bank of the Purari River in the Gulf Province. These are people on Gulf side whose physical feature resemble people of Eastern Highlands. The executives of the landowner groups said they had never received assistance in any form since they had embarked on pursuing the development of this project for more than two decades until last week.

Mr Sia acknowledged that landowner groups from inaccessible areas need seed capital for mobilisation purposes to pursue their interest in the development of resources on their land and assured them that the provincial government's support would continue. "Today's presentation does not mean this is the end," Mr Sia said. "We will continue until one day we see the result." The funding assistance to Papua LNG project landowners follows many meetings with the landowner groups and the relevant authorities including the Energy and Petroleum Minister Kerenga Kua, according to the governor Sia and Mr Atiyafa. "The indications are promising," Mr Sia said. Mr Atiyafa affirmed the indications and stressed on the need to sacrifice consistently in order to gain.

"The 2 per cent free equity to Eastern Highlands, Chimbu, Gulf and Central provinces, in oil and gas language, we are talking about hundreds of millions of Kina," Mr Atiyafa said. Paul Agiru, who leads the Eastern Highlands natural resource team that works behind the scene to bring to stage the landowners from the project impact areas, said all the oil heads and gas fields were in the PRL15, Elk and Entelope region on the west bank of Purari River in Gulf Province. "Subu, Paiti, Yakati, Kilmari, Yauri and others on the west bank of Purari River are in Okapa district Of Eastern Highlands and others in Karamui district in Chimbu Province are in the buffa zone," Mr Agiru said. "Eastern Highlands will go in when Petroleum Development Licence area is demarcated nine kilometres by nine kilometres." "Our benefits will come through development levy, equity, royalties and infrastructural development grants."

Porgera landowners organisation urges govt to address outstanding issues

April 24, 2023, The National Business



PORGERA Mining Impacted Landowners Organisation wants the Government to address the outstanding issues of environmental damage, human rights abuses, breaches in tenement agreements and land rentals. The landowners also want the Government to explain when the K210 million allocated in the 2022 Supplementary Budget to clear a backlog of claims accrued during Porgera Mine operations would be paid. Lower Porgera Landowners Association Inc chairman John Pole Pokoli said in Port Moresby on Friday that the Government should tell them how the K210 million would be allocated to various landowner associations. The legacy issues relate to outstanding rentals, non-inclusion in the riverine water rate payments as well as the environmental damages and human rights abuses emanating from the operations of Porgera Gold Mine. Some of these cases registered 25 to 30 years have remained outstanding.

“The various impacted groups, associations and companies have comprehensively documented their respective cases/claims and lodged with the operator of the mine and the responsible government agencies,” Pokoli said. “The Government has recognised the existence of these outstanding legacy issues which pose a threat to the resumption of mining.” He said the K210 million was to resolve these issues by way of monetary compensation. Paiken Landowners Association chairman Thomas Petale said the continued delay in settling the legacy issues would delay the resumption of the new Porgera Gold Mine as the claimants were custodians of installations such as power supply lines, tailings, access roads, water supply and airstrip. The landowners associations reserved the right to take legal action by way of court orders.

Lease, licence transferred

By SHIRLEY MAULUDU, April 24, 2023, The National Business

BARRICK (Niugini) Ltd and Kumul Minerals Holdings Ltd (KMHL) have transferred the special mining lease (SML) and exploration licence (EL) for the Porgera project to New Porgera Ltd (NPL). This took place on Friday. KMHL chairman Dr Ila Temu said this process fulfilled what the parties had agreed to during signing of New Porgera Progress Agreement last month. “This work that is now being signed off is a very important part of the process to get Porgera (gold project) going because this transfer of SML that Kumul Mineral holds, we call it SML 11, was issued some time back,” Dr Temu said. “The reason why that transfer is working that way is because that licence needs to be surrendered. “For the surrender process, that was the part that was agreed to by the parties – to have it transferred between Kumul Minerals to New Porgera, and then New Porgera will then surrender that SML.

“The other important paper is called the EL 454. That was the exploration licence that had the Porgera SML issued on. “You can’t have an SML issued, without the underlying exploration licence. “That exploration licence belongs to Barrick Niugini Ltd and they have decided to transfer that EL to New Porgera Ltd as part of the consolidation. “Once the New Porgera Ltd has received that EL, the company will then apply for the new SML after it surrenders SML 11. “The parties have agreed that the SML 11 has to be surrendered and a new SML applied for. “That is the process that is going to occur with the signing of these two important documents.” Temu added that the application for the transfers would be submitted to the Mineral Resources Authority (MRA) on Friday.

“According to advice we have received, the new SML application will go in sometime next week and once its goes in, there is a process within the MRA that processes that application,” he said. Normally it should take about six months or more, but we have given the urgency of reopening Porgera, there is an effort by the regulator to process that, as quickly as possible. “The amount of time we have been told is about two months. “Within two months, hopefully the new SML is issued and then the rest of the agreement like the mining development contract need to be signed off after the SML is issued and the environment transfer because the environmental permit was issued to the old SML. “So it has to be transferred from the old SML to the new SML that will be issued. “That will complete the process.”

Govt reminded of environment risks

April 21, 2023, The National Business

THE Porgera Riverine Landowners Working Group wants the Government to formulate a compensation agreement to ensure they are fairly compensated for damage to the local ecosystem. Group chairman Peter Papo said in Port Moresby yesterday that the riverine communities were impacted

by the billions of cubic meters of waste rock, sediment and tailings that were discharged by the Porgera gold mine directly into the river system. “The riverine people are subsistent farmers and alluvial gold miners or fishermen whose livelihood are dependent on the river system, the river banks and the surrounding areas,” he said.

“Our call to the Government to intervene has fallen on deaf ears in the last 30 years. “The Government refused the renewal of the Special Mining Lease in 2019, using environment damage as one of the main reasons. “We are not being consulted, we are still in the dark as to what the Government is doing about the past environmental damage claims and issues, and whether a tailings dam will be constructed for the new Porgera mine. “We are still waiting to reach an agreement with the State and the developer on the riverine waste disposal.” A riverine working group was established to present at an upcoming development forum.

Minister sees big opportunity for Gulf

April 21, 2023, The National Business

GULF must ensure it benefits from the Papua LNG project through infrastructure development related to downstream processing, a senior government minister says. International Trade and Investment Minister Richard Maru said the creation of a special economic zone (SEZ) in the province would enable the building of key infrastructure such as a wharf and airport which would both boost and complement other development initiatives in the Ihu local level government, Kikori, as well as the spark other sectors in Gulf. Maru said this in Port Moresby yesterday when announcing Ihu SEZ as the gold sponsor (K100,000) of the SEZ Summit to be held next month in the nation’s capital. “If the PNG LNG project can deliver the Komo International Airport, why can’t Papua LNG deliver a wharf and an airport also in Gulf?” he asked.

“We must go downstream and process gas in PNG, leaders of Gulf must push for this. “The Ihu Special Economic Zone, it is not a zone yet, it is a proposed SEZ, they have the potential to be used as a vehicle to transform Gulf and to start the industrialisation in PNG, Gulf has so much gas resources, it has oil underground as well, it has the potential to have a major downstream processing of gas, as an industry, this can happen in Gulf. “It also has so many gas fields. Thousands of jobs will be created. “Gulf, with the announcement of the Front-end Engineering Design (Feed) for Papua LNG project, in the coming development forum, leaders must work together with TotalEnergies and the project to build an international wharf and airport in Gulf, these are critical infrastructure to make the economic zone viable and possible in Ihu, if you do not have an airport, wharf, roads, you can’t build a viable SEZ.

“If you continue to send all the gas out just to export to other countries, you will never have the industries that Gulf needs like downstream processing of gas. “Work with the developers to put together a plan and negotiate a benefit sharing agreement that must include a wharf and airport because this will be critical to make the Ihu SEZ work. “Gulf has the potential to have another major gas project, but rather than selling gas and exporting, we should look at downstream processing. “Many countries are processing their gas and their economy have transformed, this is our opportunity.”

Twinza case dismissed

By CHARLES MOI, April 21, 2023, The National Business



THE National Court in Waigani has dismissed a case by Twinza Oil (PNG) Ltd concerning its petroleum development licence (PDL) application for the Pasca project located 95km off the coast of Kerema in Gulf. Judge Nicholas Miviri in his decision last Thursday (April 13) dismissed Twinza's judicial review stating that the company by its own conduct had demonstrated that there was no cause for alarm to maintain the process in court. Twinza had filed a judicial review after it was issued a purported instrument under Section 54(2) of the Oil and Gas Act (1998) to furnish additional information and such proposals in connection with its application for a petroleum development licence No.14 (APDL14). The instrument was issued by Petroleum and Energy secretary David Manau last April 7 in his capacity as director under the Oil and Gas Act. The instrument for additional information requested by Manau included the assertion that Twinza was a tax haven company registered in the British Virgin Islands.

Twinza aggrieved by Manau's instrument filed a case in the National Court and named Manau, Petroleum Minister Kerenga Kua, and the State as defendants in the case. Twinza argued that the instrument by Manau was invalid because the information and the proposal requested did not have any relevance to its PDL application therefore it refused to provide the information requested. Twinza also obtained a stay order concerning Manau's instrument. However, Judge Miviri in his decision found that Twinza on April 28, 2022, provided the information requested by Manau via the instrument. "This is in light of the fact that they (Twinza) had a stay in their favour not to divulge or heed section 54 (2) of the Oil and Gas Act of 1998 at the discretion of the director (Manau)," he said. Here they have opted to heed and volunteer that information even in the face of a stay order they had obtained against the director." Judge Miviri said rather than wait out the process of the court Twinza had supplied to Manau the information in defiance of the stay order. He said this was an abuse of process. Judge Miviri dismissed the case, including the stay order obtained by Twinza.

MRA celebrates 15 years of operation

By PETER ESILA, April 20, 2023, The National Business

PRIME Minister James Marape says the Mineral Resources Authority (MRA), which celebrated 15 years of operation, is a key organisation in the Government. During a function to celebrate the event last Friday in Port Moresby, he said was important because it regulated the very sector that had been

driving the national economy since Independence. Marape said without the MRA, there would be no regulation, supervision and oversight of the mining industry. The highlight was the launching of the mineral production data center, and the MRA Corporate Plan 2022-2027. Mining Minister Sir Ano Pala told the staff members that they must ensure that all systems required to regulate the mining industry worked effectively. MRA chairman Benny Kimisive said the board had been providing guidance to the management to achieve targets such as the completion of the annual financial audits, Public Investments Programme (PIP) audits, the set-up of the mineral production data centre and the corporate plan 2022-2027. Acting managing director Jerry Garry said the MRA was what it was today because of the contributions of past leaders and staff members.



Mining Minister Sir Ano Pala (left), with Mineral Resources Authority chairman Benny Kimisive (middle) meeting Prime Minister James Marape during the 15th anniversary celebration in Port Moresby last Friday.
- Nationalpics by KENNEDY BANI

One of the milestones achieved included the:

- TRANSITION to the online tenements management system;
- COMPILATION of geology mineral occurrence structures which are available online;
- ESTABLISHMENT of the PNG drill-hole data base;
- IMPROVEMENT in mine safety records;
- INCREASE in the total export revenue from minerals; and,
- INCREASE in mineral exploration activities and expenditure.

PNGEITI presents reports

April 18, 2023, The National Business

PEOPLE have the right to know what is being done with their resources, says Transparency International PNG (TIPNG) chief executive officer Arianne Kassman. “Citizens have the right to know what is being done with resources on our land, by the Government and operators,” she said. Kassman made this statement following the presentation of the PNG Extractive Industries Transparency Initiative (PNGEITI) reports for 2020 and 2021 on Friday. “We as civil society call on the Government to engage meaningfully with the EITI process through implementation of recommendations in these reports,” she said. “Civil society stands ready to engage with our partners in PNGEITI to achieve our shared vision for PNG where good governance ensures the value of our resources are realised for the benefit of our people.”

She said the recommendations in the reports must be actioned notably on contract transparency and reporting by State-owned enterprises. Treasury Department deputy secretary John Uware said the multi-stakeholder group (MSG) ensured the reports provided information on activities in the

extractive sector. Head of PNGEITI national secretariat, Lucas Alkan, said the public must make use of the reports which covered laws and fiscal arrangements that governed activities in the extractive sector. “The PNGEITI is the facilitator of the reports and the public must demand if things are not done transparently or the Government not accountable for any revenue received,” Alkan said.

Mining sector casualties have decreased over 18yrs, says official

By DANIEL EALEDONA, April 18, 2023, The National Business

CASUALTIES reported in the country’s mines have decreased over an 18-year period (2000-2017) from an average of 10 to zero, Mineral Resources Authority (MRA) acting managing director Jerry Garry says. Garry said this in a speech at the MRA’s 15th anniversary celebration in Port Moresby on Friday. He said the sector had made significant improvements in safety which was on par with international standards. Garry added that Papua New Guinea’s mine safety record was among the best in the world with development partners and state agencies working to reduce the number of casualties at mines which in turn had seen improved employee welfare and production. “We talk about this safety record, we are talking about the industry that grew from 8,000 permanent employees across the country, to about 23,000 permanent employees in our mines today,” he said.

Garry said the industry had recorded a death every second year since 2017 and hoped to reduce this rate to a death every five years further improving safety standards. “There was an incident at Lihir a couple of years back when a miner got struck by pressure valves while manually trying to open one, after the incident Lihir spent about K46 million to upgrade to automated valves,” he said. “MRA’s safety officers were on site to direct this major upgrade.” Garry added that in an industry that dealt with safety issues on a daily basis, there needed to be updated machinery, and the introduction of automated equipment and computerised systems was part of improved safety. “For the mining sector, a balanced safety record falls in line with production, and the country’s increased mining revenue of K19 billion compared with K2.7 billion in 2007,” he said. “It shows how safety records have helped increase export revenue for the country.”

Exploration is key to mines: MRA

By Peter ESILA, April 18, 2023, The National Business

EXPLORATION still remains the lifeline of the mining industry in the country, says Mineral Resources Authority (MRA) acting managing director Jerry Garry. “If you do not have exploration, you do not have a mine,” he told staff and invited guests at the agency’s 15th anniversary celebration in Port Moresby last Friday. “Before MRA’s establishment, the total exploration Kina spent on grassroots and advanced projects in the country were well below K100 million per annum. “After the establishment of the MRA, the exploration expenditure increased and peaked at around K370 million per annum, that in itself is a testimony in MRA’s achievement.”

Current advanced exploration projects progressing into mine development stage include Wafi-Golpu, Frieda River, Woodlark gold mine project, Central cement lime project, Oro nickel and cobalt project and Misima mines. Garry said that people continued to engage in alluvial mining which was a sector that had grown from earning less than K100 million to K640 million per annum under the MRA’s supervision. “Looking at the small-scale mining training centre (in Wau, Morobe), they have trained and certified more than 6,000 artisanal miners since its establishment in 2008,” he said. “That is why we have a K640 million export revenue in this sector, it is the effort of the training centre.”

10 Largest Gold Mines in the World by Production (Updated 2023)

Melissa Pistilli, investingnews.com, Apr. 17, 2023



The world's largest gold mines come in all shapes and sizes. Here's a look at the true behemoths and which companies own them. Together, the world's 10 largest gold mines produced nearly 337 metric tons (MT) of the yellow metal in 2022. According to the most recent [US Geological Survey data](#), global gold production totaled 3,100 MT in 2022. The 10 largest gold mines accounted for more than 10 percent of this output, and perhaps unsurprisingly half of these mines are located in four of the world's top gold-producing countries: Russia, Australia, Canada and the US.

Major miner Barrick Gold (TSX:[ABX](#),NYSE:GOLD), the world's second largest gold-mining company by production, holds at least a partial interest in four of these mines: Nevada Gold Mines (61.5 percent) in the US; Kibali (45 percent) in the Democratic Republic of the Congo (DRC); Pueblo Viejo (60 percent) in the Dominican Republic; and Loulo-Gounkoto (80 percent) in Mali. What were the top 10 largest gold mines by production in 2022? The list below was compiled by the team at [Refinitiv](#), a leading financial markets data provider. Read on to learn which operations made the list.

1. Nevada Gold Mines

Production: 94.2 MT

Nevada Gold Mines is the largest gold-mining complex in the world, producing 68.5 percent more of the precious metal than the next largest gold mine on this list. The operation is a joint venture between Barrick and Newmont (TSX:[NGT](#),NYSE:NEM), the world's largest gold-producing company, which has a 38.5 percent stake in the asset. Nevada Gold Mines encompasses several prolific gold deposits, including Carlin (48.9 MT produced), Cortez (22.8 MT), Turquoise Ridge (14.26 MT), Phoenix (5.5 MT) and Long Canyon (2.8 MT). The gold-mining complex has combined proven and probable reserves of 29.6 million ounces, and measured and indicated resources of 49 million ounces. As its name suggests, it's located in the top US gold-mining jurisdiction, Nevada. The US ranks as the world's fourth largest gold-producing country. In keeping with its Greenhouse Gas Reduction Roadmap, Barrick is building a [200 megawatt alternating current photovoltaic solar facility](#) to accelerate its decarbonization program.

2. Grasberg

Production: 55.9 MT

The Grasberg mining district is located in Indonesia and is the second largest gold mine and second largest copper mine in the world. The majority of the asset is owned by Freeport-McMoRan (NYSE:[FCX](#)), the ninth largest gold-mining company by production. Grasberg consists of the Grasberg block cave, the Deep Mill Level Zone (DMLZ) and Big Gossan. Daily production at Grasberg [reportedly amounts](#) to approximately 5 million pounds of copper and 5,000 ounces of gold. Freeport-McMoRan's subsidiary PT Freeport Indonesia is undertaking long-term mine development activities at the Kucing Liar deposit in the Grasberg mining district, which the company says has the potential to produce over 6 billion pounds of copper and 6 million ounces of gold between 2028 and the end of 2041.

3. Olimpiada

Production: 32.5 MT

Olimpiada is an open-pit operation that has been in production since 1996. It is located in Russia, which tied with Australia as the second largest gold-producing country in 2022. The mine is owned by the fifth largest gold-mining company by production, Polyus Gold (LSE:[PLZL](#),MCX:PLZL). Olimpiada holds proven and probable reserves of 21 million ounces of gold, and measured and indicated resources of 48 million ounces. The ore mined at the site is processed at three plants with a combined capacity of 14 million tonnes of ore annually. Polyus is [forecasting that production](#) at Olimpiada will increase in 2023 as higher-grade ore is expected to be processed following the mining of rich gold-bearing zones in the Vostochny pit.

4. Boddington

Production: 24.8 MT

The Boddington gold and copper mine is one of the largest gold-producing mines in Australia. The mine has been in operation since 2009 and is wholly owned by Newmont. Looking forward, [strong production](#) at Boddington is expected to have a significant impact on the stability of Newmont's total gold output for 2023. However, the company reports that "(b)ased on mine sequencing, gold production is expected to decline in 2024 and 2025 due to lower grade ore and stripping in the South pit."

5. Kibali

Production: 23.3 MT

The Kibali gold mine is comprised of both open-pit and underground operations located in the DRC, which is quickly gaining ground as an important gold-mining jurisdiction. Africa's largest gold mine and the world's fifth largest gold mine, Kibali is a joint venture between Barrick and AngloGold Ashanti (ASX:[AGG](#),NYSE:AU) — which both have a 45 percent interest — and the DRC's state miner Sokimo at 10 percent. The mine commenced production in 2013 and is operated by Barrick. Kibali holds proven and probable gold reserves of 4.6 million ounces and measured and indicated gold resources of 7.1 million ounces. In March 2023, [Barrick reported](#) that "(f)or the fourth successive year, exploration more than replaced the gold that Kibali mined in 2022, extending the mine's Tier One production profile to 2033."

6. Pueblo Viejo

Production: 22.2 MT

Pueblo Viejo is located in the Dominican Republic, where it is responsible for nearly 50 percent of the country's gold production. In operation since 2012, the gold mine is run by Pueblo Viejo Dominicana, a 60/40 joint venture between Barrick and Newmont.

Work at Pueblo Viejo is ongoing to convert 9 million ounces of measured and indicated resources to proven and probable reserves in an effort to extend the mine's life to at least 2040.

7. Lihir

Production: 21.8 MT

Lihir is a gold mine located on Lihir Island in Papua New Guinea. It was acquired by Newcrest Mining (ASX:[NCM](#), OTC Pink:NCMGF) back in 2010 as the result of a merger with exploration company LGL. In 2022, Newcrest ranked as the eighth largest gold company by production. Newmont, the top gold-producing company, recently made a [US\\$19.5 billion bid](#) for Newcrest. Lihir holds proven and probable gold reserves of 22 million ounces, and measured and indicated gold resources of 42 million ounces. In a [recent investor presentation](#), Newcrest states that "Lihir is entering its high grade phase," with the mining of the Kapit orebody set to begin in the 2026 fiscal year.

8. Loulo-Gounkoto

Production: 21.3 MT

In production for nearly two decades, the Loulo-Gounkoto gold mine in Western Mali is an important contributor to the country's economy. Barrick has an 80 percent interest in the complex, while the State of Mali holds the remaining 20 percent. Barrick says that a third underground mine at Gounkoto is set to commence ore production in the second quarter of 2023. The Loulo-Gounkoto gold mine holds proven and probable gold reserves of 6.7 million ounces, and measured and indicated gold resources of 9.7 million ounces.

9. Canadian Malartic

Production: 20.6 MT

The Canadian Malartic mine is found in the Abitibi greenstone belt of Quebec and is the nation's largest gold mine. Quebec is Canada's second leading gold-producing jurisdiction, and Canada itself ranks as the world's third largest gold-producing country. Commercial production began at the open pit Canadian Malartic mine in 2011. The project was previously a 50/50 joint venture between Yamana Gold and Agnico Eagle Mines (TSX:[AEM](#), NYSE:AEM). Prior to its [acquisition by Pan American Silver](#) (NASDAQ:[PAAS](#), TSX:PAAS) in March 2023, Yamana sold its stake in the Canadian Malartic to Agnico Eagle, giving its joint venture partner 100 percent control of the world's ninth largest gold-producing mine. Canadian Malartic is expected to produce through 2029; however, ongoing development of the underground Odyssey deposit is projected to extend its overall mine life to 2039. In February 2023, Agnico shared that it [expected production at the Odyssey mine](#) to commence in March 2023, and it said that going forward the Canadian Malartic mine and the Odyssey mine together will form the Canadian Malartic complex.

10. Detour Lake

Production: 20.3 MT

Agnico Eagle Mines also holds a 100 percent stake in the world's 10th largest producing gold mine. In 2022, Detour Lake was the company's biggest gold-producing mine, putting out 20.3 MT of the yellow metal. The gold mine is located in Ontario, Canada, in the northernmost portion of the Abitibi greenstone belt. Agnico reports that Detour Lake has gold reserves of 15.03 million ounces with a mine life that extends to 2042. For 2023, President and CEO Ammar Al-Joundi has stated the company's "focus will be on optimizing and growing Detour Lake and Canadian Malartic and on establishing a plan to capitalize on existing infrastructure, including our excess mill capacity, in the Abitibi region of Quebec, with the potential to produce up to 500,000 ounces of gold per year by the end of the decade."

EITI: Sector returns lower

By NATHAN WOTI, April 17, 2023, The National Business

THE extractive sector experienced lower returns from 2019 to 2021 as a result of the Coronavirus (Covid-19) pandemic coupled with the closure of the Porgera mine even though the price of gold

was strong, an economist says. Institute of National Affairs (INA) executive officer Paul Barker said the Covid-19 in 2019 and the ongoing Russia-Ukraine war had a significant impact on the revenue stream of the extractive sector which was indicated in the PNG Extractive Industries Transparency Initiative (PNGEITI) 2019-2021 report. The release of the report was due to the delay some data being provided on time. PNGEITI head Lucas Alkan said the data and figures in the reports for both years were outdated, however, PNGEITI had a standard international guideline to provide annual financial reports of its extractive sector. Alkan said the 2022 report would come out by the end of this year.



Transparency International PNG chief executive officer Arianne Kassman (left) and Institute of National Affairs executive director Paul Barker at the release of PNGEITI 2019 and 2021 report in Port Moresby on Friday.
– Nationalpic by NATHAN WOTI

He added that the updated data would be captured in the 2022 and 2023 PNGEITI reports. Barker said based on the report PNG's revenue stream from the extractive sector dropped in 2019 and 2021 compared to previous years. "In 2019, revenue was around K33 billion but it dropped to K31 billion in 2021, that was during the peak lockdown period of Covid-19 pandemic," he said. Although we had high prices in gold on the market, Porgera was closed so there was not much revenue there, but mostly it was our LNG shipments and other mines that contributed." "You will see a huge difference again in the 2022 PNGEITI report when it is released, especially with petroleum and oil. "That is because of the ongoing Ukraine-Russia war.

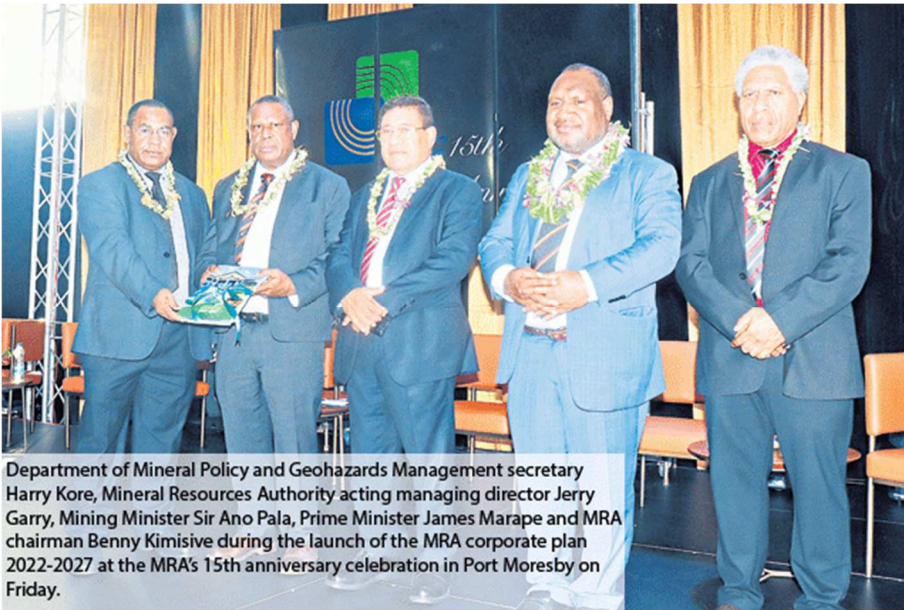
Ukraine being the biggest exporter in the market, the war affected oil prices to drop and this will cause some changes to the figures in the next (2022) report. "But, otherwise, all the other areas of the economy picked up in 2022 and the country had a good flow of the economy." Barker added that important auditing institutions such as the Internal Commission Against Corruption, Office of the Auditor General, and civil societies had to ensure that all their systems were updated in order to provide accurate and up-to-date data to PNGEITI which they can then compile and have available to the public. "This process requires Treasury to play their part, Department of Planning, Department of ICT, civil societies like INA, TIPNG, and there are many others out there that need to come in and contribute in terms of providing the latest data, so the public can be in a better position to understand," Barker said.

Mines to cease by 2063

By PETER ESILA, April 17, 2023, The National Business

ALL major mining mineral reserves in the country will be depleted by 2063, says Mineral Resources Authority (MRA) acting managing director Jerry Garry. Garry said during the MRA's 15th

anniversary celebration in Port Moresby on Friday that the export revenue of the mining industry was K19 billion. “Going back to around 2007, the total export revenue from the mining industry was around K2.7 billion,” he said. “After the establishment of the MRA, the numbers have tripled. “And today, the highest numbers we have seen is around K19 billion.”



Department of Mineral Policy and Geohazards Management secretary Harry Kore, Mineral Resources Authority acting managing director Jerry Garry, Mining Minister Sir Ano Pala, Prime Minister James Marape and MRA chairman Benny Kimisive during the launch of the MRA corporate plan 2022-2027 at the MRA's 15th anniversary celebration in Port Moresby on Friday.

During the celebration, the MRA launched its live mineral production data and the 2022-2027 corporate plan. “By 2063, all the major reserves we have in the country will be depleted,” Garry said. “That includes Wafi-Golpu, and Frieda River projects. “The period that is required, from empirical observation that we have, is that it may take anywhere between 11 and more than 50 years. “Frieda River in East Sepik was discovered in 1967, and it is still a project and not commissioned (yet). “We need to invest in the next layer of deposits to sustain the mining business in the country. “And the only way to do that is to go deep because those deposits or assets in the surface have already been tested.”

Dialogue seen as crucial

By NATHAN WOTI, April 14, 2023, The National Business



Petroleum and Energy Minister Kerenga Kua speaking to the Papua LNG Plant site landowners yesterday.
— Nationalpic by NATHAN WOTI

STAKEHOLDER dialogue must be carried out promptly before development of resource projects can take place, Petroleum and Energy Minister Kerenga Kua says. Kua said this during a landowner forum at Borea village, Central, yesterday. He said the two major projects in the Southern region — the P’nyang Gas and Papua LNG projects — were currently in their front end engineering design (or Feed) stage and this was when consultation with different landowner groups and stakeholders needed to be completed before the final investment decision (FID) stage took place next year. “We have a short window here and I want to emphasis that we must get ourselves organised and fix all the outstanding disputes before the FID stage of the projects,” he said.

“At the FID stage we should be able to present the projects beneficiaries groups to the developers and it should be happening during our Development Forum, which is the next big thing that we are tasked to host.” Kua said he was constantly asking the Government to provide adequate funding to speed up the process and get the projects online. He said disputes among participating groups and landowners would not help in fast tracking important phases of the projects. Kua urged landowners in all impacted areas of Papua LNG and P’nyang Gas to work together and come to fair solutions that would benefit all stakeholders including the State and developers. Meanwhile, Kua commended Laba Holdings Ltd, the umbrella landowner group where Papua LNG plant is situated, for hosting early dialogue in preparation for the development forum.

Newcrest clarifies deals

April 14, 2023, The National

NEWCREST has denied the New Ireland government’s claim that the company has outstanding project commitments amounting to K1.2 billion. “Newcrest and its wholly-owned subsidiary, Lihir Gold Limited, are not party to the Revised 2007 Memorandum of Agreement (MoA), or the three original 1995 MoAs. “The MoA is an agreement between the three tiers of the PNG Government and the Lihirian landowners, and does not include Newcrest. “Newcrest continues to comply with its obligations under its Special Mining Lease and the various agreements it has in place with a multitude of stakeholders for the operation of the Lihir Gold mine, including direct agreements with Lihir’s landholders.”

Partners sign MoU for Wafi-Golpu project

By SHIRLEY MAULUDU, April 13, 2023, The National Business



Deputy Prime Minister and Lae MP John Rosso (left) greeting Harmony Gold Southeast Asia CEO Johannes Van Heerden (middle) and Newcrest Mining Ltd chief technical and projects officer Suresh Vadnagra at Government House last Thursday.
— Nationalpics by NICKY BERNARD



Bulolo MP Sam Basil Jr (left) meeting David Wissink, of Wafi-Golpu Joint Venture.

THE Morobe government supports the development of the Wafi-Golpu copper/gold project, Governor Luther Wenge says. Wenge said this following the signing of a framework memorandum of understanding (MoU) last week by the State and project partners, Harmony Gold Mining Ltd and Newcrest Mining Ltd.



Members of the State Negotiating Team with Prime Minister James Marape.

“The Morobe people want the mining (project) to go ahead and we have given them just that,” he said. “As a national leader, I would like to say that the country carries more in debt, price of goods and services are going up, people are suffering from (a lack of) better medical services and national leaders must stand up for our country. “Our country’s interest is paramount, it does not matter what constituency you represent or what position you hold in Parliament.



From left: Chairman of the State Negotiating Team Dairi Vele, State Enterprises Minister William Duma, Bulolo MP Sam Basil Jr with Governor-General Sir Bob Dadae.

“That was the driving factor that got me to ensure, we get this project going.” Bulolo MP Sam Basil Jr said Morobe MPs had all agreed for the project to proceed. “I congratulate the companies, and the governor and all other members for uniting in this right from the start,” he said. “As the host MP for the Wafi-Golpu project, my main focus will be on the landowners and their benefits. “I will ensure that what is promised by the State and developer is rightfully given to the locals.”

Watut local level government president Waka Daimon said: “We have now arrived at the signing of this long-overdue process. “This signing should have taken place a long time ago. “As minister for

mining for the province, I am sure this project will give back more to the province in terms of benefits.”



From Left: Deputy Prime Minister and Lae MP John Rosso, Morobe Governor Luther Wenge, Prime Minister James Marape and Mining Minister Sir Ano Pala at Government House last Thursday

KPHL fabrication facility nearing construction stage

April 12, 2023, The National Business



From left: Sinec president Zheng Lijun, KPHL managing director Wapu Sonk and CSCEC vice-president Chen Lie during the MoU signing ceremony.
- Picture supplied

THE Kumul Petroleum Holdings Ltd (KPHL) fabrication facility is nearing the construction stage, according to the company. This follows the signing of a memorandum of understanding (MOU) with two overseas companies which will oversee the engineering, procurement and construction phase of the project. Managing director Wapu Sonk said the two companies – Sinopec (Ningbo) Engineering and Construction and the China State Construction and Engineering Company (CSCEC) – would “work with us on the engineering, procurement and construction phase of the fabrication facility”. “This complements the agreements we already have with two Dubai-based companies: A2Z LLC to design the heavy fabrication engineering plant, and Fabtech International to manage the facility for us,” he said.

“The facility will have a capacity of 20,000 tonnes per year, producing steel, mechanical, piping and electrical modular packages, such as those that will be necessary in the construction phase of the Papua LNG Project and subsequent LNG and mining projects.” Sonk revealed that the facility would provide direct employment for around 1,000 skilled and indirect jobs for 3,000 locals, when it is in operation. He pointed out that if the facility had to run 24hours a day, the number of jobs could double. “Kumul Petroleum is expecting to work with the Papua LNG Project’s EPC contractors to start using the facility when the project achieves FID and enters the construction phase later

this year or early next year.” He stressed that the facility was designed to meet national content requirements for petroleum, energy, mining and major infrastructure construction, for the provision of professional technical services, in addition to the likely high number of employment and training opportunities that such projects would generate.

Santos produced 8.6 million tonnes of LNG last year

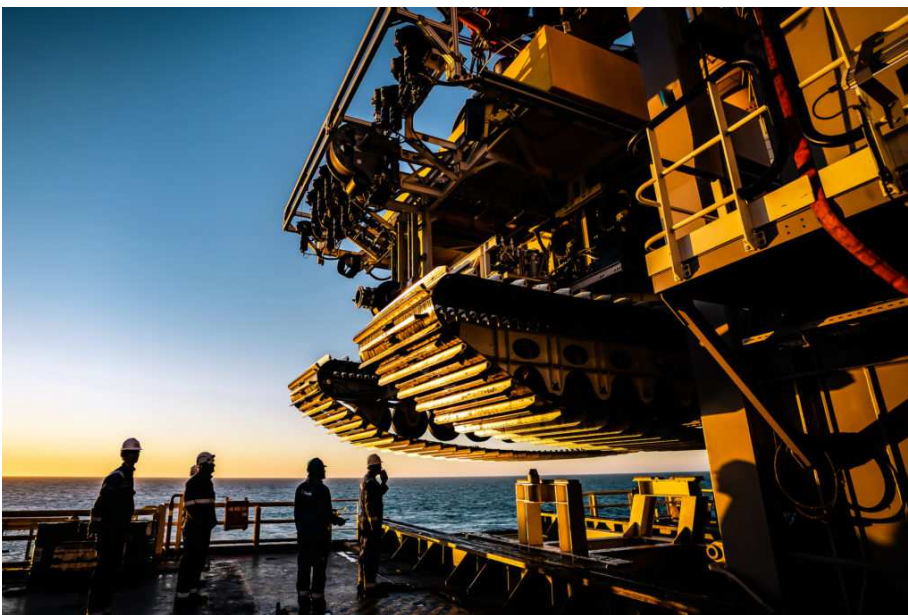
April 12, 2023, The National Business

THE Papua New Guinea LNG project produced 8.6 million tonnes of liquefied natural gas (LNG) last year according to Santos. Managing director and chief executive officer Kevin Gallagher said the company’s asset in PNG performed well last year. “Our upstream business comprises three LNG projects in Darwin, Gladstone and Papua New Guinea – and two producing Australian domestic gas assets, onshore in the Cooper Basin and offshore Western Australia,” Gallagher stated at the recent company annual general meeting. “In the Cooper Basin, we added a fifth drilling rig to help boost production. “Our assets in PNG also performed well, with PNG LNG producing 8.6 million tonnes.

“Bayu-Undan has been a success story, with production extended into this year, enabling additional spot cargoes from Darwin LNG. “In Western Australia, we have had some challenges, with lower production and accelerated natural field decline at Reindeer and Spar/Halyard. “Our upstream projects have been well executed over the past year despite external challenges. “Our Barossa gas project offshore northern Australia is now more than half complete and remains a high-value accretive project for Santos. “We have now also taken a significant step forward with Papua LNG, last month announcing entry into front end engineering and design.” He added that Santos was progressing in its aim to become a clean fuel company.

The deep sea mining debate is “gone” — it’s happening, says The Metals Company CEO

Bruno Venditti, mining.com, April 11, 2023



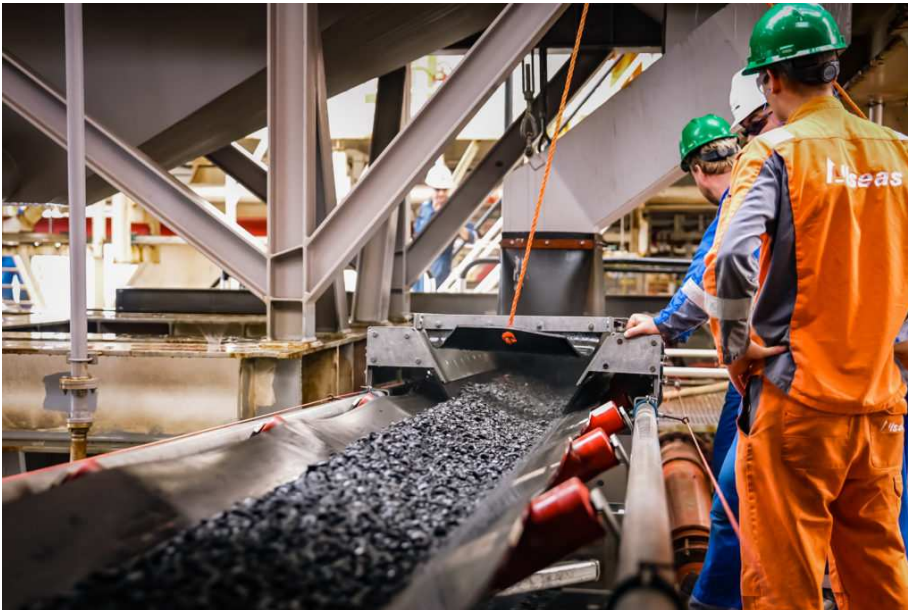
Automakers and steelmaking companies have shown interest in the technology, according to Gerard Barron. Despite opposition from environmental groups, the CEO of The Metals Company (TMC) which has exclusive access to the Nori Clarion-Clipperton Zone (CCZ) polymetallic project, located 4,000 metres deep in the northeastern Pacific Ocean and ranked as the [world’s biggest undeveloped](#)

[nickel project](#), sees deep sea mining happening by the end of 2024. Mining international waters is in the spotlight as companies and countries are looking at minerals concentrated on the ocean floor that can be used in batteries for smart phones and electric vehicles.

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The Metals Company has said [the nodule resource is now estimated at four megatons](#) (Mt) measured, 341Mt indicated and 11Mt inferred mineral resources. It is estimated that 21 billion tonnes of polymetallic nodules are resting on the ocean floor in the CCZ. Almost 20 international mining companies have contracts to explore the region which spans over 5,000 kilometers and is considered the most prolific area for ocean mining. The International Seabed Authority (ISA) said it will start [accepting applications](#) in July from companies that want to mine the ocean's floor. The recent decision came after the UN body spent weeks debating standards for the practice. In 1994, the UN Convention on the Law of the Sea established the ISA to regulate the industrialization of the seabed in international waters and ensure effective marine environmental protection.

The ISA had been slowly developing the mining code. However, Nauru, a South Pacific island nation of 8,000 people, sped things up by triggering a two-year rule in the Law of the Sea treaty. That provision required the ISA to complete the mining code by July 9, 2023, or accept mining applications under whatever regulations existed at the time. "People think we are debating if this (deep sea mining) should happen or not, and that's gone. It's happening," The Metals Company CEO Gerard Barron told MINING.COM. "The International Seabed Authority has been mandated to regulate this activity and put in place the exploration and the exploitation regulations while protecting the marine environment. The NGOs have been trying to use the legal method to oppose deep sea mining, to perpetuate a delay. How badly they've got it wrong."



Metal reserves in the deep sea are estimated to be worth anywhere from \$8 trillion to more than \$16 trillion. (Image: The Metals Company)

According to Barron, organizations like Greenpeace and the WWF have been trying to [cast doubt](#) over the technology, by trying to perpetuate the idea that they can cause a moratorium on deep sea mining. "There is no legal framework to allow it, the convention of the Law of the Sea is really very flat," said Barron. [Twelve nations](#), however, have expressed reservations supporting a ban, a moratorium, or "a precautionary pause" on the start of the commercial exploitation of deep sea mineral resources. "This is all just noise. Even the nations that are resistant, like France and Germany, have been working very hard over the last weeks to progress the code," said Barron. By the convention, only sovereign nations or contractors sponsored by a state can apply to explore the deep sea. The

Metals Company has three sponsoring states, the Kingdom of Tonga, the Republics of Nauru, and of Kiribati. The Metals Company's [NORI-D Project](#) is the world's most advanced, and is sponsored by the Republic of Nauru.

Recently, a robotic collector vehicle on the sea floor in the CCZ pulled up about 3,500 tonnes of nodules up the airlift riser to the vessel. The company plans to have an environmental impact statement as part of the application for a commercial license by the end of the year and start extracting by the end of 2024. "They talk about more science, but guess who's doing the science? It's companies like us," said Barron.

Chinese competition

While debating with environmental groups, western firms like The Metals Company are also facing competition from Asian enterprises. Last month, China Daily [reported](#) that the country will make renewed efforts to join the race to mine the deep sea for critical minerals. "There is no doubt that China will be fast on our heels. But they will be held to the same very high standards, and China also wants strong environmental regulations as well," said Barron.

Investment from automakers

The Metals Company already has its first production vessel, the Hidden Gem, and plans to use an existing plant in Japan to process the wet nodules. Despite a moratorium [signed](#) by Samsung, Volkswagen, Renault-Nissan-Mitsubishi, BMW and Volvo Trucks to wait until more research is done on deep sea mining, companies like Tesla, BYD, CATL and GM did not sign. According to Barron, automakers have shown interest in investing in the company. "Steelmaking companies are interested too since most nickel and manganese go to the steelmaking industry," said Barron.

Wafi-Golpu to boost economy

By SHIRLEY MAULUDU, April 11, 2023, The National Business



Chairman of the State negotiating team Dairi Vele (left), signing the MoU with Wafi-Golpu joint venture partners Johannes van Heerden, chief executive officer of Harmony Southeast Asia (right), and Suresh Vadnaga, chief technical and projects officer of Newcrest Mining Ltd.
— Nationalpic by NICKY BERNARD

THE country is set to take 55 per cent of the total benefits from the Wafi-Golpu copper/gold project in Morobe, Prime Minister James Marape says. Marape highlighted this following the signing of a framework memorandum of understanding (MoU) on Thursday by the State and project partners, Harmony Gold Mining Ltd and Newcrest Mining Ltd. According to the partners, the MoU represents a significant step forward in progressing and signing a mining development contract (MDC) for the K18.5 billion project. Marape said the project would anchor the country's economy for the

next 40 years and beyond. “It took us a while to get to this point in time,” he said. “This MoU shows how the state negotiated with investors. “The team negotiated fair and hard with the investors without compromising their (investors) rate on return on their investments.

“All in all, if you look at the pie split, on the harvest that will take place against a price of US\$1,200 (about K4,220) an ounce (28.3g). “It is a good project on the upside, we now move to see that 55 per cent state take when you put in equity, royalty tax, including the two per cent premium on fiscal stability. “We are embarking on a least costly, the minimal impact to the environment. “The developers for the first time, have put into provision a facility of over US\$394 million (about K1.38 billion) as a facility for social infrastructure programmes in the project area footprint. “That’s also part of the 55 per cent gain. “When you break it down to equity, they hold 35 per cent each while the country has 30 per cent.” According to WGJV, the MOU sets out key terms to be included in MDC, which is a prerequisite for a Special Mining Lease (SML), including:

- STATE equity participation, royalty rate, tax package and term and scope of the SML;
- KEY terms for other related agreements with the State, including provision for stability to underpin the significant long-term investment required to develop and operate the project;
- COMMITMENTS for the WGJV to invest in infrastructure and social development projects that will deliver long-term benefits to local communities; and,
- THE framework for the parties to progress the permitting of the Wafi-Golpu project as quickly as practicable in accordance with applicable regulatory processes.

Suresh Vadnagra, chief technical and projects officer representing Newcrest Mining Ltd, said: “Wafi-Golpu is one of the world’s best undeveloped copper and gold deposits. “It is recognised globally for its potential and it promises to deliver substantial economic benefits.” Harmony Gold Southeast Asia chief executive officer Johannes van Heeden Harmony said: “This is going to be a team effort. “This is the first step of the partnership where we will see this magnificent project developed.”

State take for Wafi-Golpu set at 55 per cent

BY DALE LUMA, Post-Courier, April 11, 2023

The country stands to gain an extra US\$2 billion (K7 billion) more from the Wafi-Golpu resource project in Morobe Project with the state take set at 55 per cent, says Prime Minister James Marape. Mr Marape said during the signing of the Framework Memorandum of Understanding (MoU) between the state and the developers that this is far better deal than the one signed in 2018. “The project will anchor the economy of the country in the next 40 years and beyond,” Mr Marape said. The MoU represents a substantial step forward in progressing towards the signing of a mining development contract for Wafi-Golpu and confirms the parties’ intent to proceed with the project, subject to finalising the permitting process and approvals of both the Newcrest and Harmony Gold boards. “This is an exciting prospect which has a quite substantial copper and gold resource,” Mr Marape said.

“This signing today is the far better version than the O’Neill government signing of the MoU in 2018. Today we stand US\$2 billion more than the 2018 signing that took place in Sydney. “All in all, if you look at the pie split, using modelling, against a price of US\$1200 (K4100) an ounce, the modeling seeks to deliver to us in the vicinity of US\$12 billion (K41 billion) to US\$13 billion (K45 billion) as we go into the life of the special mining lease (SML) that we issue. “A good project all in all, we now move to see that 55 per cent total state take. When you put in equity, royalty, tax, including tow per cent premium on fiscal stability, we now sit on the side of 55 per cent take.

“Porgera is on 53 per cent in the life of 20 years, this one is 55 per cent over the life of 30 years to 40 years. “Every mine operation in the world has a cost to the environment and we are embarking on the minimal and as much as possible impact on the environment. The developers have put in provision a facility of over US\$394 million (K1.4 billion) for social infrastructure programs around the footprint of the project area.” It is understood in terms of equity, the developers, Newcrest and Harmony Gold, hold 35 per cent each while the state holds 30 per cent, where 10 per cent will be passed to Morobe Province and landowners.

Vele: Country to benefit from golden era of resource projects

BY DALE LUMA, Post-Courier, April 11, 2023

State Negotiation Team (SNT) chairman, Dairi Vele says the country stands to benefit from a golden era of projects. Speaking after the signing of the Wafi-Golpu Framework Memorandum of Understanding (MoU), he said the country has no excuse now but the only problem with it is that at some stage the resources will run out. “It’s a golden era of resource projects. I did my first deal in 2008 for the PNG LNG and at that time we were looking at US\$30 billion (K105 billion) in revenue over a short period of time,” Mr Vele said. “We now have Papua LNG which is just under another US\$30 billion in revenue over a period of time.

We have P’nyang which overall will get almost US\$7 to US\$9 billion (K24-K31 billion) and there’s another US\$14 billion (K48 billion) in the project. “Porgera is US\$10 billion (K34 billion) in revenue over 20 years and this one (Wafi-Golpu) is US\$23 billion (K80 billion) over a period. Golpu is so big that they have not got to the bottom of Golpu yet, they are still finding more. “But what they have seen is 28 years of mining there and, remember, there are three deposits there. “So Papua New Guinea, we have no excuse now. We should be developed like Singapore in the next 30 years, I really believe this.”

Porgera: Law and order issues hinder re-opening

April 5, 2023, The National Business

THE Porgera mine is on the road to re-opening and law and order issues must be addressed in the valley, an official says. Porgera crisis management committee president Nickson Pakea has commended Porgera-Paiela MP Maso Karipe for prioritising law and order with K1 million funding allocation. Pakea, who is also the Porgera chamber of commerce and industry president, called on the joint venture partners to make Porgera a priority. He said the build-up of firearms, kidnapping and ransom demands making the district unsafe. Pakea added that Karipe, after his election, had promised to address the district’s law and order problem as well as focus on education. He noted that Karipe had honoured that intention with a K1 million funding to combat lawlessness in the area. Karipe had also told his people that they needed to build a peaceful and law-abiding community in order to enjoy the benefits of services and business. Pakea acknowledged the Government for establishing a separate district for Porgera.

Pacific - deep-sea mining

Radio New Zealand, 6 April 2023

The UN body responsible for safeguarding the deep ocean will start accepting applications for deep-sea mining in July. Reuters reports the International Seabed Authority made the decision at the conclusion of its two-week meeting debating the standards for controversial fledgling industry in Jamaica last week. Deep-sea mining would target metals used in the production of batteries - cobalt,

copper, nickel and manganese primarily through the harvesting of nodules on the seabed at depths of 4 to 6kms. The seabed authority's governing council formulated a draft decision on Thursday that allows companies to file permit applications starting in July, a deadline set in motion by actions Naruru took in 2021, according to a copy seen by Reuters. But Chile, France, Palau and Fiji, among other nations, have called for a global moratorium on the practice, citing environmental concerns and a lack of sufficient scientific data.



Greenpeace activities opposing deep-sea mining Photo: © Marten van Dijk / Greenpeace

Papua New Guinea's Porgera goldmine to reopen 'at the earliest' Radio New Zealand, 4 April 2023



PNG stakeholders will control 51 percent, while Barrick will have 49 percent equity in the New Porgera Limited.
Photo: Scott Waide

The owners of the Porgera goldmine in Papua New Guinea's Enga Province hope to resume production "at the earliest opportunity". Porgera Gold Mining, which contributed to almost 10 percent of PNG's exports, has been shut for nearly three years after the government refused to roll over the lease during the height of the Covid-19 pandemic in 2020. At the time, Prime Minister James

Marape's government said that it was "in the best interest of the state" to close down the mine - a decision contested by Barrick Niugini Limited. But last year, new shareholding was agreed between Canadian multi-national, Barrick, and PNG stakeholders, who include local landowners and the provincial and national governments.

The local stakeholders will control 51 percent, while Barrick will have 49 percent equity in the New Porgera Limited. The economic benefits would be shared 53 percent by the PNG partners and 47 percent by Barrick Niugini Limited, which will operate the mine. The chairperson role will alternate, with a representative from the PNG side to take the position in the first year. Now the company has to obtain a special mining lease before the mine can be restarted. Barrick president and chief executive Mark Bristow said there was strong support from all stakeholders to get Porgera reopened as soon as possible.

"It's been a long journey but in the process we have secured the buy-in of all the stakeholders," he said at the signing ceremony. Barrick said the reopening of Porgera mine "would represent another victory for our host-country partnership model." He said the partnership model has been successful in Tanzania and has also been adopted for the new Reko Diq Copper-Gold project in Pakistan. "Localization is an essential part of our partnership philosophy so New Porgera will, whenever possible, source the goods and services it requires from businesses genuinely based and owned in Porgera, the Enga province and Papua New Guinea," he said. "Similarly, it will give preference to locals in recruiting employees for the reopening mine."

Parties want Porgera re-opened

April 4, 2023, The National Business

PORGERA Chamber of Commerce and Industry president Nickson Pakea says the new Porgera mine must be re-opened this year. "Barrick chief executive officer's (Mark Bristow) March 31 deadline was on the wall. We had mixed feelings about the status quo of the mine," he said. Pakea said the signing of the new Porgera progress agreement in Port Moresby on Friday was a commitment by all parties to re-open the mine at the earliest. "Four years of pain is a long-term struggle to us and we need the mine re-opened immediately," he said. He said the first quarter of the year had gone. "Fortunately, news had reached us on the signing the new Porgera progress agreement. "This is indeed a relief to the business community of Porgera and Enga," he said. Pakea said law and order remained a major concern. "We still have lawlessness which needs urgent attention by the state. "The arms build-up in the valley is causing fear to the business community and mine employees. "Our lives are at risk and we need government intervention."

Our deep sea is being colonised

Radio New Zealand, 4 April 2023

Analysis

Mining deep areas of the ocean to gather rare metals for electric car batteries and other green technologies is attracting cash-strapped Pacific island governments. Exploration is now under way in the waters around the Cook Islands - or 'Avaiki Nui, as the islands are known among those who reject its colonial name - for sites with potential for deep-sea mining. While the country's leaders are enthusiastic, there are many who say it's simply extractive colonisation all over again. Liam Koka'ua, who has roots in both 'Avaiki Nui and Aotearoa, talks to Teuila Fuatai.

At COP27 last year, my nation's prime minister Mark Brown [told the world](#) how 'Avaiki Nui is leading the way to a greener future. He talked about our 15 islands "walking the talk" as we live

with the impacts and threats of climate change. We have 13 islands on solar power, and the goal is to have the remaining two converted in the next two years. He highlighted our commitment to net zero emissions by 2040, and our focus on building resilient infrastructure - increasingly necessary as the world around 'Avaiki Nui and Te Moana Nui a Kiwa refuses to seriously cut emissions. Then he said it was no one else's business what we do in the waters around our islands. He was referring to increasingly loud calls for a moratorium on deep-sea mining, which he finds hypocritical because they most often come from large nations responsible for the bulk of climate change emissions.



Liam Koka'ua: "Deep-sea mining affects all Indigenous peoples who depend on Te Moana Nui a Kiwa for physical, cultural and spiritual sustenance." Photo: Fliss Thompson

"The very countries that destroy our planet through decades of profit-driven development, and who to this day continue their profit-driven actions, and neglect their climate change responsibilities, are making demands for a moratorium on our ocean," Mark Brown told the conference. "It is patronising and it implies that we are too dumb or too greedy to know what we are doing in our ocean." In the last five years, the deep-sea mining industry has taken off, driven by global demand for greener technologies. In 'Avaiki Nui, there's strong support for this developing industry. Since the 1960s, we've known that the seabed around 'Avaiki Nui has rich deposits of polymetallic nodules. The nodules, about the size and shape of potatoes, cover the seabed in vast areas and contain valuable minerals such as cobalt, manganese, copper and nickel which are used to make smartphones, electric vehicle batteries, solar panels, and other high-tech applications. Big mining companies refer to the nodules as a "battery in a rock" because they have everything a new battery needs.



Polymetallic nodules in the western Atlantic Ocean. This image was captured on a deep-sea research mission in 2019. Photo: NOAA Ocean Exploration

But, until now, seabed mining to harvest these nodules has been limited because effective extraction technology hasn't existed. That's why no large-scale mining occurred when research and mining companies first discovered the mineral-rich areas. Instead, these minerals have been mined from land-based sources. But some say those sources are being exhausted, especially as we haven't been recycling what's extracted. So, many companies are now looking to the seabed. Increased demand, coupled with improved mining technologies, means that our ocean floor is now a viable commercial source.

Mark Brown believes my islands of 'Avaiki Nui stand to gain. He thinks by entering commercial mining agreements, we'll contribute to a greener and more sustainable future while tapping into a rich income stream. His interest is essentially economic. He looks at the natural resources on our ocean floor and sees them offering benefits like diversifying our economy, hard cash for big infrastructure improvements, education funding for scholarships, and a national investment fund to maximise the mining-related cash. These are all worthy and valid things to want. But at the heart of it, mining is extraction for the sake of profit. It tramples on the very things that make us Indigenous, that tie us to our land and moana, and to our ancestors and future generations. We know from mining land-based sources that it's a practice where there's no respect for the relationships between people, the land and ocean, no balance or re-setting of actions, no restoration of what's stripped out, and no reciprocity or giving back.

'Capitalist way of operating'

It boils down to extracting the resources there and then, and moving on to the next frontier. It's a capitalist, western way of operating. The existing research on mining the deep sea raises red flags for our moana and sea life. And that's just from what the studies already say. There are still so many unknowns around the harms of seabed mining because of our limited knowledge of the ocean's extreme depths. The nodules sit far below the surface, usually about four to six kilometres down. They also differ in composition depending on where they are. For example, in the deep ocean around 'Avaiki Nui, the nodules are rich in cobalt, one of the main minerals used in lithium-ion batteries for electric vehicles. Right now, the most efficient method for extracting the nodules involves dropping a rover-type vehicle down to the ocean floor to vacuum them up in massive quantities. In our waters of 'Avaiki Nui, there's estimated to be about 10 billion tonnes of nodules.

Once the nodules are vacuumed up, the machine shoots them up a pipe to a processing ship. Here the nodules are cleaned to remove silt and salt water, before being taken to the shore where the minerals are extracted. Back on the processing ship, the left-over sediment is pumped to about midway down the water column before being released. So far, there've been problems identified at each stage of this process. At those extreme depths, the whole seabed is pretty much sand, and the nodules are often the only solid surface, where they act as anchors for wildlife. Over billions of years, sea life has evolved to live on and around them. These range from microscopic organisms to sponges and other species that feed on those that settle on the rocky surface. It's a whole interconnected ecosystem. Removing the nodules cuts a key piece of that ecosystem out. Not only that, when the nodules are removed, all the organisms living on and around them are also sucked up by the rover.

Unlike a forest, or even a coral reef, the nodules can't regenerate or heal themselves within decades or even generations. They start off as a tiny bit of marine debris, perhaps something hard like a shark's tooth. Little by little, minerals within the seawater are attracted to the solid object in minuscule amounts. The nodules form over millions of years. They are finite and non-renewable. When I think about what that means, and the place of these nodules within the moana, I think about the lives of my tūpuna and how they lived, and the balance they successfully kept with their natural environment by managing what they took with what they gave back. Our tūpuna were able to clearly see the impact they were having because they managed their natural resources on a near-daily basis,

and they could reduce their harvesting accordingly, or even place a rā'ui (ban) if needed. The deep sea is not the same.

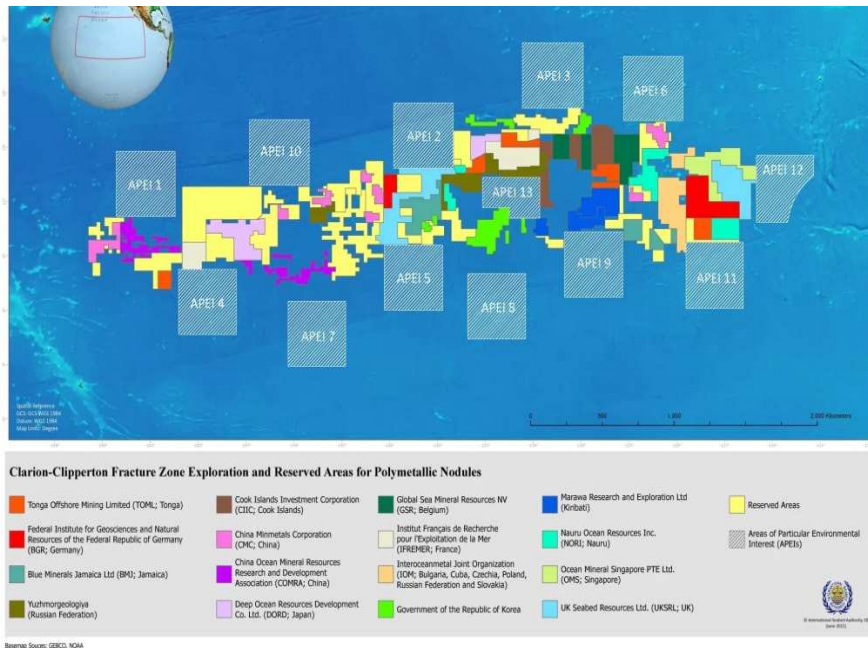
Marine life at risk

In Rarotonga, we've already polluted the lagoon with agricultural chemicals and septic waste, and most of our wetlands have been filled for commercial development. These practices go against the balance and respect our tūpuna had for the 'enua and moana. Our eagerness to follow this same path with mining of the moana shows how far we've shifted from our beliefs as Māori people, how disconnected we've become as tangata 'enua, how isolated we are from the repercussions of our behaviour. We seem to be moving further and further away from how our tūpuna respected and understood the interconnectedness of the world around them. Almost everywhere you turn in deep-sea mining, there is harm to other living organisms. For example, at that depth underwater, species have evolved to live in 100 percent darkness. When a rover vehicle hits the seafloor with lights blazing to illuminate its path, there's the potential to damage everything that's never been exposed to light before.

Getting rid of the sediment from the nodule cleaning process has also been identified as potentially damaging. The sediment is pumped back into the water at a much shallower depth than the nodules were extracted from. When it eventually settles back on the seabed, many of the organisms, sponges or marine life living at those depths aren't used to it. They've never had to cope with layers of sand or silt landing on them because their environment is usually very still. There's a risk they could be suffocated, or inhibited from generating energy or feeding. Recent research also looks at the potential effects of deep-sea polymetallic mining on larger marine organisms like whales, dolphins, sharks and migratory fish. These are the animals that keep the balance in our food chains and in the fish we rely on for subsistence. Many of them use sonar for their feeding and migration habits. The research showed how noise from mining machinery and vessels disrupts the sonar which is integral to how they feed, migrate and reproduce.

It's possible we'd miss those impacts because we wouldn't see them. These are animals that travel around the ocean and often in deep waters. Sediment plumes could spread several kilometres by ocean currents. Machinery noise also travels, so the potential damage isn't limited to specific mining areas in the ocean. Deep-sea mining overrides our inherited knowledge of the ocean as our life source. I don't like to romanticise about how we're people of the moana. We're definitely people of the 'enua too. But we couldn't have survived on our islands without the moana and our reef and ocean fish. Now, after generations of depending on the ocean, we're behaving in a way that causes permanent harm to it and other living organisms there. It's a disconnection from the world around us that clashes with our Indigenous beliefs and worldview.

Deep-sea mining permanently removes habitats from the ocean. It's reasonable to expect this to have a cascading effect, one that goes far beyond those who are making the decisions right now. As Indigenous peoples, we should be connected to our past and future, and understand the role of the environment in that. We should have an idea of how our tūpuna lived and why they lived that way, and also the kind of life our actions will create for our descendants. Of course, we're not the only people from Te Moana Nui a Kiwa supporting the development of deep-sea mining. Nauru, Tonga, and Kiribati have agreements with the Canadian mining company The Metals Company for exploratory mining in the Clarion Clipperton Zone, an area of deep ocean lying north of 'Avaiki Nui, between Mexico and Hawai'i. The zone is bigger than India's total land area and is outside any one nation's control. Instead, it's managed by ISA (the International Seabed Authority), a UN organisation. 'Avaiki Nui also has an exploratory licence for a block inside the zone.



The International Seabed Authority is responsible for regulating activity in the Clarion-Clipperton Zone, which has been divided up between different countries for the purposes of potential deep-sea mining. Photo: International Seabed Authority

So far, mining activity in the Clarion-Clipperton Zone has been limited to exploration because the ISA is yet to formally adopt a mining code. But, keen to get started, Nauru has managed to trigger a mechanism in the UN rules to enable it to begin commercial-grade mining in the area after two years. It effectively means large-scale mining in Te Moana Nui a Kiwa could begin in July this year. Echoing the arguments of our government in 'Avaiki Nui, Nauru's president Lionel Aingimea frames the move as a way for Nauru to benefit from contributing to a greener future. "This process," he has said, "will allow Nauru and other developing countries to participate in a new industry, accessing valuable resources in light of a historical context that far too often deprived developing countries from reaping the benefits."



The arrival of mining research vessel Anuanua Moana at Avatiu harbour, Rarotonga, earlier this month. The ship belongs to Moana Minerals, one of three companies with exploration permits for deep-sea mining in 'Avaiki Nui. Photo: Cook Islands' Seabed Minerals Authority

What's ironic is that much of Nauru is now wasteland after its land was stripped for phosphate in the first half of the 20th century. In the second part of the century, it lost the wealth generated by that mining through a series of bad financial decisions made by the government. Deaf and blind to such lessons, in 'Avaiki Nui we're plunging ahead. In February last year, [the government issued licences](#) for the exploration of seabed mining in our waters to three international mining companies: Cook Islands Cobalt, Moana Minerals, and the Cook Islands' Investment Corporation Seabed Resources. The licences are for five years. After that, the companies can reapply for permission to begin commercial operations.

The companies are required to produce research showing they'll use safe mining practices, but there's no independent verification required. They'll be saying: "Look, we think we can mine these things sustainably," and no one will seriously test that. What we need is third-party, objective research undertaken over a period of decades before we can even to begin to claim to understand these deep-sea ecosystems. These huge corporations have already established offices in Rarotonga. They've invested in mining and research vessels, and they have exploration agreements. So, even if our government reversed its pro-seabed mining stance, I expect it would trigger expensive court action. We've seen this happen elsewhere. The Mexican government is now embroiled in legal action with a US company, Odyssey Marine Exploration, after rejecting the company's permit for phosphate dredging in its waters.

Odyssey Marine Exploration, which also has a stake in one of the mining companies in 'Avaiki Nui, says the Mexican government has been given ample information showing its dredging methods and plans are environmentally safe. It's seeking US\$3.5 billion in compensation. All these reasons are why I think a moratorium on seabed mining is essential, and why I applaud other Pacific nations like New Zealand, Sāmoa and Fiji for supporting those calls. In October last year, New Zealand's foreign affairs minister Nanaia Mahuta said her government supported a [conditional moratorium on deep-sea mining](#) in international waters. Nanaia said we simply didn't know enough about the environmental impacts of deep-sea mining, and more research was needed before any large-scale mining could be considered. Te Pāti Māori co-leader Debbie Ngarewa-Packer has also spent years working to stop seabed mining activity here in Aotearoa, particularly around Taranaki (where she's from) as well as around the world. When I hear Nanaia and Whaea Deb advocating for a different path, it gives me hope. Deep-sea mining affects all Indigenous peoples who depend on Tea Moana Nui a Kiwa for physical, cultural and spiritual sustenance. We can't disregard those Indigenous voices outside of our islands.

Rooted in colonialism

I hear Māori in Aotearoa telling us Māori in 'Avaiki Nui that: "Hey, you're out of line" over our government's desire to mine the deep ocean. We should be listening to our whanaunga. It's important to talk about deep-sea mining on our own Indigenous terms, not just economic ones. The lowest depths of our moana, like the highest peaks of our maunga, are where our atua dwell. For that reason, they are tapu places. These are sacred relationships that have many layers. The peaks of our maunga, for example, are where our rainfall collects among our oldest forests, before being gradually filtered down into the lowlands. Maintaining tapu in these areas means our drinking water remains clean. Likewise, the deep sea is the most fragile part of our ocean. It's a carbon sink and habitat for our earth's least understood creatures. Our tūpuna lived by those beliefs and a number of atua were known to reside in those depths.

But over generations of colonisation, we've lost that connection and way of life. It's the missing layer when we're evaluating and weighing up the proposals. It's also knowledge and understanding that we can access right now, without needing to wait for decades-long research to be conducted. When we don't listen to those beliefs, we're not really seeing the full picture of risks for the moana, for future generations, and how our tūpuna understood and respected the world around them.

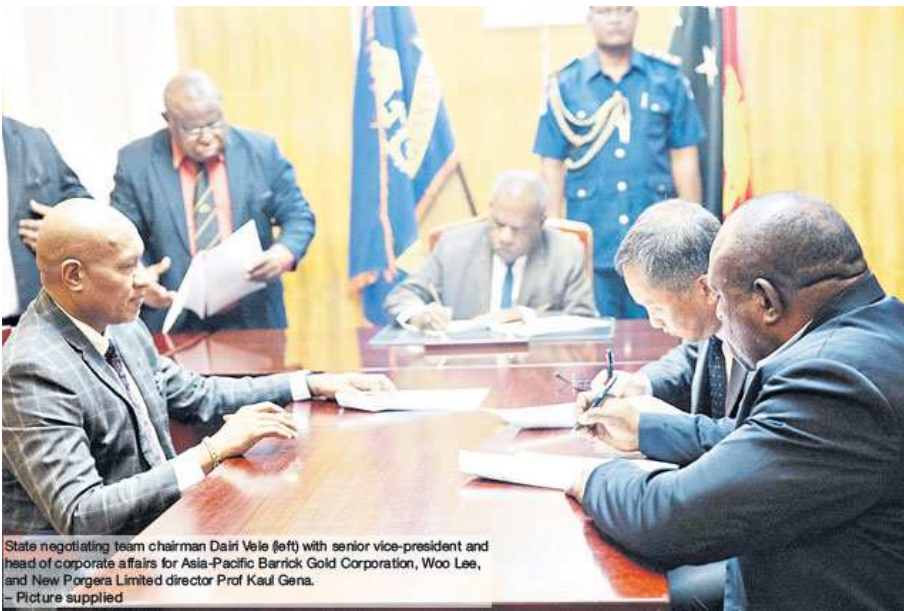
Climate change is a problem caused by extraction, caused by colonialism, caused by capitalism. The deep-sea mining industry is attempting to mitigate it by opening up yet another frontier of extraction.

Collectively, as people of Te Moana Nui a Kiwa, we need to see it for what it is and act against it. **Liam Koka'ua** is of the Ngāti Makea Ārera of Pokoinu, Rarotonga. He also traces descent from the islands of Pāmati, Mangaia, Manihiki, Rakahanga, Tongareva, Aitutaki and Tahiti. He has a master's degree in Indigenous Studies and is now a senior Pasifika specialist at Auckland Council. Liam attended the COP27 climate change conference in Sharm-El-Sheikh, Egypt, last year representing the Blue Cradle Foundation, which is advocating against deep-sea mining.

- *E-Tangata*

State to engage with LOs

By GYNNIE KERO, National, 3 April 2023



State negotiating team chairman Dairi Vele (left) with senior vice-president and head of corporate affairs for Asia-Pacific Barrick Gold Corporation, Woo Lee, and New Porgera Limited director Prof Kauli Gena.
— Picture supplied

PRIME Minister James Marape has assured landowners of the Porgera gold mine in Enga that the State will engage with them starting this month as preparations towards the mine's re-opening. Speaking at the signing of the New Porgera Progress Agreement in Port Moresby on Friday, Marape said it was "a huge step towards re-opening the mine". The deal signed by the State, Barrick Niugini Limited and New Porgera Limited, confirmed that all parties were committed to reopening the mine at the earliest time and in line with the terms of the Porgera Project Commencement Agreement and the New Porgera Limited Shareholders Agreement both concluded last year. The New Porgera project team will now move ahead with the filings for a special mining lease and progressing the other conditions set out in the Commencement Agreement for the re-opening of the mine.

In terms of shareholding, Marape said the State had 51 per cent and Barrick a 49 per cent stake in the mine. He added that the economic benefit split between the two parties were 53 per cent for the State and 47 per cent for Barrick. "Kumul (Minerals Holding Limited) side of the board will chair the first year of operation. Next year, Barrick side will chair so we alternate every year," Marape said. "The assurance to our landowners is that in the month of April, May and June we will start to engage with them in terms of preparations." Barrick president and chief executive Mark Bristow said there was strong support from all stakeholders to get Porgera reopened as soon as possible. Commenting on the signing, Bristow said: "Mine stopped in 2020. This is the start of the beginning.

“I am very comfortable we will get to start the mine this year. “I think we need to leave the past behind and look forward.”

One more step to Porgera gold mine reopening

BY DALE LUMA, Post-Courier, 3 April 2023

BARRICK Gold Corporation president, Mark Bristow says the miner is committed to producing gold from the Porgera Gold mine well within this year. Speaking after the signing of the New Porgera Progress Agreement (NPPA) on Friday, Mr Bristow said this is the start of the beginning. He said the next step is to transfer the exploration licence from the old Porgera to the new Porgera and make the application for the special mining licence which will open the door to starting up the mine. “We have a number of people to employ between now and the startup and we have started and we will continue to employ people,” Mr Bristow said. “Once we have the special mining lease (SML) finalised, we will be able to give you a clear roadmap to first gold. We have that under the original agreement which is very clear and we believe that we will deliver on that and we are very committed to producing gold well within this year.”

The Porgera mine has been closed since 2020 when the State did not renew and award the SML to developer, Barrick Niugini Limited. Prime Minister James Marape said: “We are a nation of rule of law and law dictates how we progress matters in relation to investment and every other transactions we do in our country.” The mine closure saw thousands of jobs lost and a big chunk of PNG’s revenue lost by all stakeholders. Progress to reopening was also delayed with other challenges, most recently, an old tax liability from the old Porgera operations. Porgera hosts an ore body with measured and indicated resources of 10 million ounces and inferred resources of 3.4 million ounces. After initial ramp up and optimisation of the Wangima pit, the mine is forecast to produce an average of 700,000 ounces per year, achieving a milestone towards its potential tier one status.

The NPPA signed now confirms that all parties are committed to reopening the mine at the earliest opportunity, in line with the terms of the Porgera Project Commencement Agreement and the New Porgera Limited Shareholders Agreement both concluded in 2022. The New Porgera project team will now move ahead with the filings for a SML and progressing the other conditions set out in the Commencement Agreement for the reopening of the mine. The equity in New Porgera is shared 51 per cent by Papua New Guinea (PNG) stakeholders, including local landowners and the Enga provincial government. Economic benefits will be shared 53 per cent by the PNG stakeholders and 47 per cent by Barrick Niugini Limited, which will operate the mine.

Deep-sea mining is key to making transition to clean energy, says Loke

Kenza Bryan and Harry Dempsey, Financial Times, April 1, 2023

Norwegian owner of UK Seabed Resources says backing from Europe needed in the face of Chinese dominance Demand for commodities such as copper, lithium and rare earths are set to boom because of their use in vital technologies and infrastructure to decarbonise the global economy such as electric cars, renewable power and upgrades to the grid. The EU has warned for years that the bloc’s reliance on imports of critical raw materials could expose it to supply squeezes from China and threaten its goal to reach net zero emissions by 2050. Most of the world’s cobalt is refined in China, as are all of the rare earths used in magnet production for electric vehicles and wind turbines, it said last month. Mining companies must obtain the backing of ISA member states in order to obtain exploration licences. The UK, France, India, Russia and China are among countries that have given such backing.

Loke, based in Norway's oil capital Stavanger, is backed by companies including Norwegian defence contractor Kongsberg Grupper, UK offshore engineer Technip FMC and Norwegian shipping group Wilhelmsen. It bought UK Seabed Resources from US defence group Lockheed Martin in March for an undisclosed sum. UKSR's assets include two licences in the Pacific Ocean's Clarion-Clipperton Zone, the largest known deposit of battery metals. Loke plans to make an investment decision on mining in the Pacific in 2027 but faces an uphill battle to build a supply chain and client base if it goes ahead.

Commodities group Glencore and Danish shipping company Maersk have both invested in The Metals Company, a Canadian start-up with exploration licences in the CCZ. But big potential consumers including Tesla and BMW have said they will not touch metals mined from the sea because of environmental concerns. Nick Popovic, co-head of copper and zinc trading at Glencore, told the FT Commodity Summit last month that even when environmental concerns were put aside, economic uncertainties over deep-sea mining made it a difficult investment proposition. "The problem with deep-sea mining is that it's so early in the game that without any meaningful examples, I would personally struggle to assess it," he said.

Barrick Niugini and PNG Government sign agreement to resume Porgera Gold Mine Operation PNG News, Headlines, April 01, 2023

The government of Papua New Guinea, Barrick Niugini Limited and New Porgera Limited have signed an agreement to progress with the resumption of operations at the Porgera gold mine, which have been suspended since 2020. Porgera hosts an orebody with measured and indicated resources of 10 million ounces and inferred resources of 3.4 million ounces. After initial ramp up and optimisation of the Wangima pit, the mine is forecast to produce an average of 700,000 ounces per year, achieving a milestone towards its potential Tier One status. The New Porgera Progress Agreement (NPPA), signed today, confirms that all parties are committed to reopening the mine at the earliest opportunity, in line with the terms of the Porgera Project Commencement Agreement and the New Porgera Limited Shareholders Agreement both concluded in 2022. The New Porgera project team will now move ahead with the filings for a special mining lease and progressing the other conditions set out in the Commencement Agreement for the reopening of the mine.

The equity in New Porgera is shared 51% by Papua New Guinea (PNG) stakeholders, including local landowners and the Enga provincial government. Economic benefits will be shared 53% by the PNG stakeholders and 47% by Barrick Niugini Limited, which will operate the mine. After the signing ceremony, Barrick president and chief executive Mark Bristow said there was strong support from all stakeholders to get Porgera reopened as soon as possible. "It's been a long journey but in the process we have secured the buy-in of all the stakeholders. For Barrick, the reopening of the mine would represent another victory for our host-country partnership model which has been so successful in Tanzania and has now also been adopted for the new Reko Diq copper- gold project in Pakistan," Bristow said. "Localization is an essential part of our partnership philosophy so New Porgera will, whenever possible, source the goods and services it requires from businesses genuinely based and owned in Porgera, the Enga province and Papua New Guinea. Similarly, it will give preference to locals in recruiting employees for the reopening mine."

UN to start taking deep-sea mining applications this July

Reuters, March 31, 2023

March 31 (Reuters) - The International Seabed Authority will start accepting applications in July from companies that want to mine the ocean's floor, a decision that came after the U.N. body spent

the past two weeks debating standards for the new and controversial practice. Deep-sea mining would extract cobalt, copper, nickel, and manganese - key battery materials - from potato-sized rocks called "polymetallic nodules" on the ocean's floor at depths of 4 to 6 km (2.5 to 4 miles). They are abundant in the Clarion-Clipperton Zone (CCZ) in the North Pacific Ocean between Hawaii and Mexico. The ISA's governing council formulated a draft decision on Thursday after meeting in Jamaica that allows companies to file permit applications starting on July 9, a deadline set in motion by actions the island nation of Nauru took in 2021, according to a copy seen by Reuters.

article-prompt-devices



Greenpeace activists from New Zealand and Mexico confront the deep sea mining vessel Hidden Gem, commissioned by Canadian miner The Metals Company, as it returned to port from eight weeks of test mining in the Clarion-Clipperton Zone between Mexico and Hawaii, off the coast of Manzanillo, Mexico November 16, 2022. REUTERS/Gustavo Graf

The ISA's staff would then have three business days to inform the council. The council plans to meet virtually before July to debate further whether approval of such applications could be delayed once received, according to the document. "This deeply irresponsible outcome is a wasted opportunity to send a clear signal ... that the era of ocean destruction is over", said Louisa Casson of Greenpeace, which opposes the practice due in part to concerns it could harm whales and other wildlife. The Metals Co (TMC.O), which has a deal to supply metals to Glencore Plc (GLEN.L), is one of the most prominent voices advocating for the practice. Its executives have repeatedly said they believe deep-sea mining would have less impact than traditional mining for battery metals on land. China is a leader in deep-sea mining exploration, but Chile, France, Palau and Fiji, among other nations, have called for a global moratorium on the practice, citing environmental concerns and a lack of sufficient scientific data.

Wafi-Golpu project landowners want govt services

March 30, 2023, The National

MOROBE'S Wafi-Golpu project landowners are concerned about the welfare of the people from the area which have no roads, health and education services. Three landowners associations from Hengambu, Yanta and Babuaf want government services in their areas. Hengambu president John Nema, Babuaf president Jack Raban and Yanta acting president Gim Sombe also urged the Government to use the K100 million infrastructure development grants. "Since Independence, we have not (seen) any infrastructure development by the government," a spokesman said. "The only service we

were getting was provided by the developer which stopped in 2019 when it applied for the mining license.



Yanta men carrying a patient on a makeshift stretcher through the jungle, across rivers to the Golpu camp where they awaited a helicopter for the medical evacuation to Lae. – Pictures supplied



Part of the Wafi-Golpu road on Demakwa mountain. – Pictures supplied

“Because the license is delayed, our people, the customary landowners of this multi-billion Kina project are (affected) by the negotiation between the State and the developer. “The road conditions have deteriorating, putting the lives of the people at risk. “People are dying from curable sicknesses. “Mothers are dying from child birth complications because there is no proper aid post. “Classrooms built by developers in our communities are deteriorating. “Some of our students are using temporary classrooms.”

RANKED: World’s biggest nickel projects – 2022

MINING.com Editor, March 25, 2022

Nickel is used mainly in the steelmaking process, but also in production of batteries for electric vehicles, and it is the metal that has grabbed the most [headlines so far this year](#). This week alone, the price jumped by the 15% daily limit on the London Metal Exchange, adding to a string of sharp price moves as the [market seeks to reset](#) following an [unprecedented short squeeze](#) and week-long trading halt. A chaotic trading whirlwind at the beginning of March saw the nickel price spiking 250% to a high of \$101,365 a tonne. The spike was driven in large part by a short squeeze centered on Chinese tycoon Xiang Guangda, who had [amassed a big wager](#) that nickel prices would fall through his company Tsingshan Holding Group Co.

When the dust [settles after the nickel price drama](#), what remains is the certainty of the demand for the metal, as electric car makers race to build more batteries and manufacturers increasingly use high-nickel cathode battery chemistries. To identify major nickel deposits that could form part of the global supply landscape in the future, MINING.COM and sister company [MiningIntelligence](#) compiled the 10 largest projects under development worldwide and ranked them based on contained nickel resources in the measured, indicated and inferred categories.



(Image courtesy of The Metals Company.)

	Property	Country/Region	Majority Owner	Development Status	Geology	Contained Nickel (mt) ▾
1.	NORI Clarion - Clipperton	Pacific Ocean	The Metals Company	Advanced Exploration	Sediment Hosted Manganese	11.53
2.	TOML-Clarion Clipperton Zone	Pacific Ocean	The Metals Company	Advanced Exploration	Sediment Hosted Manganese	9.99
3.	Sangaji	Indonesia	ANTAM	Advanced Exploration	Nickel - Cobalt Laterite	6.61
4.	Dumont	Canada	Waterton Global Resource Management	Feasibility	Magmatic Sulfide	5.69
5.	Turnagain	Canada	GIGA Metals	Prefeasibility	Magmatic Sulfide	4.84
6.	Twin Metals Minnesota	United States	Antofagasta	Prefeasibility	Magmatic Sulfide	4.24
7.	Jacare	Brazil	Anglo American	Prefeasibility	Nickel - Cobalt Laterite	3.92
8.	Decar	Canada	FPX Nickel	Preliminary Economic Assessment	Magmatic Sulfide	3.11
9.	Mesaba	United States	Teck Resources	Advanced Exploration	Magmatic Sulfide	2.92
10.	Crawford	Canada	Canada Nickel Company	Preliminary Economic Assessment	Magmatic Sulfide	2.87

Source: MiningIntelligence

mining
intelligence
data

#1 NORI Clarion-Clipperton

Development status: Advanced Exploration/Geology: Sediment Hosted Manganese

Other commodities: cobalt, copper, manganese

In top spot is the Nori Clarion-Clipperton polymetallic project, located 4,000 metres deep in the northeastern part of the Pacific Ocean with 11.53 million tonnes (mt) contained metal. The project is named after the seafloor zone between Hawaii and Mexico, in international waters. The exploration contract is held by Nauru Ocean Resources Inc., but the Metals Company, [formerly Deep Green Metals](#), has exclusive access to this area.

#2 TOML Clarion-Clipperton

Development status: Advanced Exploration/Geology: Sediment Hosted Manganese

Other commodities: cobalt, copper, manganese

The TOML exploration zone is also part of [The Metals Company's portfolio](#), with estimated resources 9.9 mt tonnes contained nickel and with similar grades to NORI. In 2020, the Metals Company acquired Tonga Offshore Mining Limited (TOML), giving the company exploration rights to a 74,713 km² block of CCZ seabed that contains an inferred resource of 756 million wet tonnes of polymetallic nodules.

#3 Sangaji

Development status: Advanced Exploration/Geology: Nickel-Cobalt Laterite

Other commodities: cobalt, iron

The Sangaji project in Halmahera, Indonesia, held by Indonesian miner ANTAM is in third place with 6.61 mt contained nickel.

#4 Dumont

Development status: Feasibility/Geology: Magmatic Sulphide

Other commodities: cobalt, palladium, platinum, magnetite

In 4th place is Waterton Global Resource Management's Dumont nickel-sulphide deposit in Quebec. With 5.69 mt of contained nickel, once in production, Dumont is expected to rank among the biggest nickel operations in the world, with an average annual nickel production of 39,000 tonnes for over 30 years. In 2021, Waterton hired [Goldman Sachs as advisers to sell the project](#), seeking to capitalize on demand for the resource.

#5 Turnagain

Development status: Prefeasibility/Geology: Magmatic Sulphide

Other commodities: cobalt

The Turnagain project operated by Giga Metals in British Columbia is in fifth place with 4.84 mt contained nickel. Giga Metals aims to develop Turnagain into the [world's first carbon-neutral mine](#).

#6 Twin Metals

Development status: Prefeasibility/Geology: Magmatic Sulphide

Other commodities: cobalt, copper, gold, palladium, platinum, silver

In sixth place is Antofagasta's Twin Metals project located in Minnesota's Duluth Complex mining camp with 4.24 mt contained nickel. The proposed mine has been under close scrutiny for years over potential environmental risks. Last year, the US Bureau of Land Management agreed to [reconsider its decision to renew 13 prospecting permits](#) in Minnesota, which could have allowed Antofagasta to expand its proposed copper-nickel mine, leaving the project in limbo.

#7 Jacare

Development status: Prefeasibility/Geology: Nickel-Cobalt Laterite

Other commodities: cobalt

Anglo American's Jacare project in Brazil is in seventh place with 3.92 mt contained nickel. Jacare lies about 90 miles away from the Vale's Onça Puma nickel mine.

#8 Decar

Development status: Preliminary Economic Assessment/Geology: Magmatic Sulphide

Other commodities: N/A

In eighth place is FPX Nickel's greenfield discovery at Decar with 3.11 mt contained nickel. The project – named after the district in central British Columbia, [hosting the awaruite mineralization](#) – is estimated to produce 72 thousand metric tons per year of nickel, over a mine life of 35 years.

#9 Mesaba

Development status: Advanced Exploration/Geology: Magmatic Sulphide

Other commodities: cobalt, copper, gold, palladium, platinum

Teck Resources' Mesaba nickel project in the US is in ninth place with 2.92mt contained nickel. Mesaba is the largest sulphide deposit in Minnesota's Duluth Complex.

#10 Crawford

Development status: Preliminary Economic Assessment/Geology: Magmatic Sulphide

Other commodities: cobalt, palladium, platinum

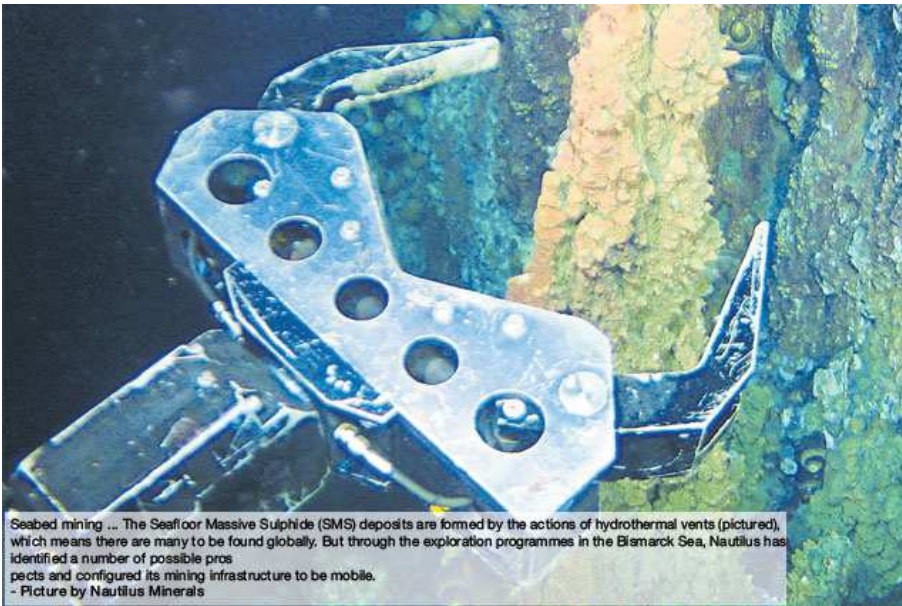
Canada Nickel Company's Crawford project in Ontario rounds out the list with 2.87 mt contained nickel. The operation is set to generate 2.05 tonnes of carbon dioxide per tonne of nickel-equivalent production over a mine life of 25 years – [93% lower than the industry average](#) of 29 tonnes of CO₂.

**Honourable mentions go to Zebediela in South Africa and Windy Craggy in Northern British Columbia as significant deposits and to Ivanhoe's Platreef project in South Africa, which has moved into construction.*

Download the data from [Miningintelligence here](#).

Group voices opposition to deep-sea mining

March 29, 2023, The National Business



A GROUP representing communities in the Bismarck and Solomon seas has opposed plans by the National Government and the New Ireland administration to restart the deep-sea mining project, Solwara 1. The Alliance of Solwara Warriors (ASW), in a statement, said a recent announcement by Mining Minister Sir Ano Pala and New Ireland governor Sir Julius Chan on revisiting the project was not welcome by the group. ASW said the national government needed to learn a lesson from the failed Nautilus Ltd project which was hampered by funding and legislative setbacks in the 2000s. "As coastal communities, we will not support the government because we have been at the forefront of stopping this project," the group said in a statement.

It added that Nautilus had cost the country more than K375 million which could have been spent on the basic needs of its citizens such as health and education. "We are more concerned about our marine ecosystem because this has supported us for generations and the sea has been our home and it is critically important we protect it." ASW said there were international treaties that had been recently

accepted by the global community such as the Cop Conservation of Biological Diversity, International Marine Protected Area (Impac) and the recent Ocean Treaty which Papua New Guinea is a member. All these documents call for the protection of the marine ecosystem and as a member of this global community PNG has participated in some of these discussions but been conspicuous by its absence from these meetings, it said.

ASW said the Government failed to attend the Impac5 in Vancouver, Canada, last month and had failed to attend the International Seabed Authority Council Meeting to be fully aware of responses from different states on the issue of seabed mining. “It is sad that we are left behind and now confused ourselves by engaging in a project that has not been given approval by the International Seabed Authority,” it said. The group said the current discussion on the International Seabed Authority regulatory framework needed to take precedence and the Government needed to stop issuing mining and exploration licenses.

K100mil in taxes yearly

March 24, 2023, The National Business

THE Mineral Resources Development Company (MRDC) group pays about K100 million in corporate tax annually to Government, an official says. Managing director Augustine Mano said this was from the K7 billion in total investment that the group owned. “In 2020, MRDC Act was amended to bring governance into MRDC itself and all its subsidiaries,” he said. “MRDC itself is very diverse. “Not only in the oil and gas but also in the aviation sector, we are in the power sector, hospitality, medical sector, we touch every aspect of the economy. “We pay almost a K100 million a year in tax in all our subsidiaries together. “Compared to some of the mining companies that do not match us in terms of being a good corporate citizens. In terms of employment, we support all the sectors of the economy.”

Mano added that the group had about 21 subsidiaries. “We have about 21 subsidiary companies which is not easy to manage,” he said. “They all have different boards. Six of them are independent companies. “So it’s a big, diverse, complex company. Each of them have to be regulated separately, under the Oil and Gas Act, Mining Act.” MRDC is registered under the Companies Act (1997) and is wholly owned by the State. The prime minister is the trustee shareholder. The board consists the secretaries for the departments of Treasury, Petroleum, and Mineral Policy and Geo-Hazard Management, the managing director as ex-officio directors and four independent directors.

Ok Tedi mine parties urged to find solutions

March 23, 2023, The National Business

WESTERN’S Ok Tedi mine has about 10 years of life remaining and it is crucial that parties to the project’s memorandum of agreement reach mutual beneficial solutions, say officials. A review of the agreement is underway in Alotau, Milne Bay. Review chairman Andrew Gunua urged the parties to cooperate as the agreement must be finalised in the review. Department of Mineral Policy and Geohazards Management’s Harry Kore and State team leader Michael Wau said the parties must reach mutually beneficial solutions this week. They urged the parties not to dwell on the past, but look to a better tomorrow. Ok Tedi Mining Ltd acting general manager, external relations, Jesse Pile said for the past 30 years, the mine had contributed much to the nation. “In the remaining 10 years, landowners and impacted communities must be given priority in terms of benefits,” he said. The agreement provides the basis for the distribution of mine-derived benefits to parties and project developers.

Govt to pursue Solwara 1 talks

By SHIRLEY MAULUDU, March 23, 2023, The National Business

MINING Minister Sir Ano Pala says the Government expects to pursue discussions with a deep sea mining company to revisit the potential for extracting minerals in the Bismark Sea off the west coast of Namatanai, New Ireland. Deep Sea Mining Finance Ltd (DSMF), the company that acquired Nautilus Minerals, which had previously pursued interest in deep sea mining in the mid-2000s through the project known as Solwara 1. According to information on the DSMF website, the company is a privately owned group aiming to become the first in the world to mine the sea floor of massive sulphide deposits, starting with its high grade copper-gold Solwara 1 project. “We expect discussions again with the company,” Sir Ano told The National yesterday. A statement from New Ireland government confirmed also that Governor Sir Julius Chan met with a team from the company this week in the province.

“The governor also found time in between the provincial executive meeting to engage in dialogue with DSMF,” the statement said. “The team from Deep Sea Mining Finance Ltd was led by its CEO Chris Jordinson, including technical service manager Glen Jones, offshore exploration project manager Anthony Manocchio and Nautilus Minerals country manager Paul Lahari. “Jordinson indicated to the governor and PEC members to have met with Mining Minister Sir Ano Pala and the Mineral Resources Authority last week in Port Moresby. The dialogue between the company and New Ireland government is vital as they are responsible for the local impacted communities of the proposed Solwara 1 project off West Coast New Ireland. “The NIPG have suggested to the developer, Deep Sea Mining Finance Ltd to conduct proper awareness with the locals on the proposed project including engaging an independent scientist to evaluate possible environmental impacts and give confidence to the local people that the project will not in any way affect their livelihood.”

Tolukuma’s environmental issues a concern to locals

Post-Courier, 20 March 2023

Tolukuma Mine in the Central Province is set to reopen its mining operation after years of closure, however, environmental issues still remain a concern for the local affected communities. Local MP for Kairuku, Peter Isoaimo while appreciating and welcoming the news for the mine to restart operation bringing in more revenue to the country said the people of Kairuku have an issue with the reopening of the mine. This is, especially with the dumping of the mine waste that have actually happened in the 24-30 years of mine operations. People of Kuni, Mekeo and Kairuku LLGs are the people who live along the St Joseph’s river ring that runs from Tolukuma area in Goilala district and ends up at Oreke village at the mouth of St Joseph.

“The St Joseph Angabanga river ring has got sedimentation build up in the river bed which causes havoc as soon as the rain starts pouring in the mountains of Goilala district,” Mr Isoaimo said. “We have deformed babies and mysterious deaths. “All these relates to destruction caused by the mine in the last 25-30 years of the mine’s life. “With the reopening now, I’d like to bring to the attention of the Mining and Conservation and Environment Protection Agency that we need to look at the livelihood of the people. Otherwise we will cause a genocide like every other place in the world.”

Mr Isoaimo asked the Mining Minister to confirm if the mining licence was issued to the new mining operator, Lole Mining, to commence operation despite all the environmental issues that are yet to be resolved. Minister for Mining, Sir Ano Pala in response confirmed the existence of the licence as well as clarifying the status of the operator. It is understood that the company has just bought the mine from the liquidators and is now going into business. Sir Ano assured the people of Kairuku of

the issues of concern and that responsible authorities, will look at every way possible to minimise the impact of waste.

Ramu to supply power for Wafi-Golpu

BY NELSON JOE, Post-Courier, 20 March 2023

The Wafi-Golpu Gold Mine project in Bulolo district of Morobe Province will be the economic base of the upcoming Ramu 2 Hydro project between the Eastern Highlands and Morobe provinces. State Enterprise Minister William Duma gave this assurance in his response to the questions without notice from the Kainantu MP William Hagahuno during the Parliament session last week.

“They (Kumul Consolidated Holdings Limited) on behalf of the PNG Power and Ramu 2 Hydro project developer) will then be negotiating with the Wafi-Golpu Mine so that they sign an off-grid agreement so that they underpin the economics of this project,” he said. “PNG Power is owned by this country and it is important that both sides of this house (Parliament) support this project. “It is a project where the Eastern Highlands provincial government and the landowners have allowed PNG Power to supply power from Yonki Hydro, but were not able to get any benefit from the government over the years.

“This time around, the government has recognised the contribution made by the people of Eastern Highlands and has made a decision to allow free equity to be given to the people and the provincial government for shareholding up to 20 per cent for that project and another 20 per cent to the people of Morobe who host the Wafi-Golpu gold mine,” Mr Duma said. He assured that the State guarantee will be signed soon. “The project developer and the KCHL will then approach the Eastern Highlands and Morobe provincial governments and the landowners to sign the benefit sharing agreements,” he said. “It is a build, transfer and own agreement that will enable the developer to spend about K3.2 billion to recover investment and then transfer ownership to PNG Power which will own only 60 per cent and the Eastern Highlands and Morobe provincial governments and the landowners will own the balance.” He said the Ramu 2 Hydro will be the first project that will be jointly owned by the government and people under the build, transfer program.

Depts restrained from releasing levy to Hela govt

March 17, 2023, The National

THE National Court in Waigani has restrained Petroleum and Energy and Finance departments from releasing the 2022 development levy to the Hela government. The interim restraining order was requested by the Hides PDL 7 special purpose authority pending their substantive matter against Hela Governor Philip Undialu and the provincial government. The court was told that the two departments paid some money as development levies to the Hela government account every year to be distributed to the beneficiaries of the Liquefied Natural Gas (LNG) project sites.

The Hides PDL 7 special purpose authority filed the substantive matter claiming that the development levy paid to the Hela account was not distributed to the beneficiaries such as the local level governments and the special purpose authority. For example, the authority claimed that the Komo LLG was one of the beneficiaries left out since 2014. It is requesting the court to have 30 per cent of the 2021 development levy paid into the Hides PDL 7 special purpose authority’s account. Acting Judge Laura Wawun-Kuvi, on Wednesday, said the interim injunction order sought should be granted for the interest of justice, pending the substantive matter.

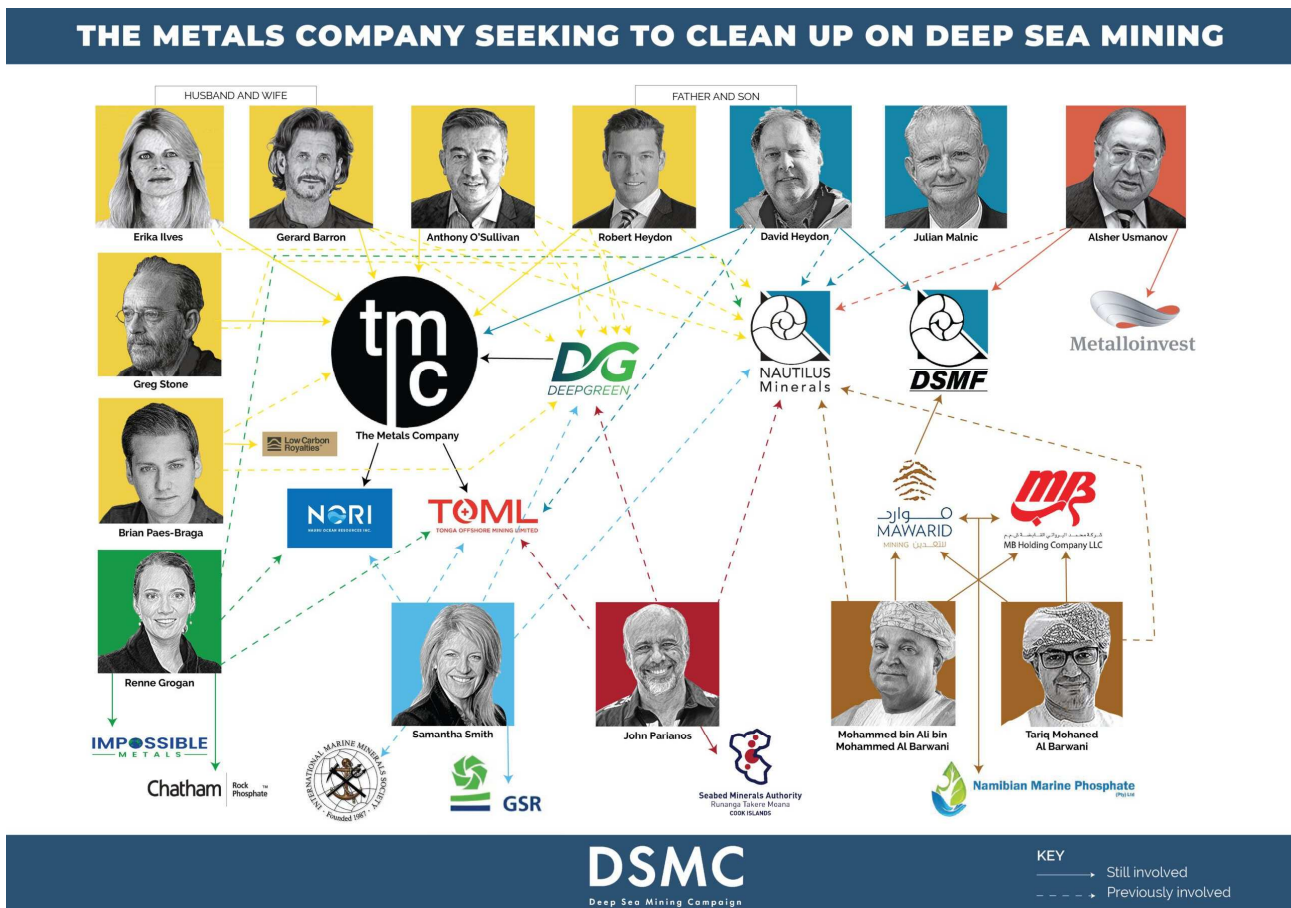
The decision is set for April 28.

The Metals Company: Seeking to Clean Up on Deep Sea Mining

DSMC, March 2023

The Metals Company (TMC)'s recent announcement of a new strategic partnership throws a light on a web of insiders and nepotism within the world of the company. TMC's latest deal is with Low Carbon Royalties, which is led by Brian Paes-Braga, Managing Partner of SAF Growth the equity investment arm of SAF Group.[1] For those with short memories it is worth noting that Brian Paes-Braga was a director of DeepGreen, the company that morphed into TMC after a September 2022 company merger. Because of his role as a director payments are listed for him in the 2021 TMC accounts.[2] And so, it continues; it seems that the main deals TMC and its CEO Gerard Barron make to stave off bankruptcy are with insiders. This paints a picture of the difficulties they have in persuading anyone outside those interested parties that deep sea mining has any merit. It also speaks to nepotistic ties.

In order to illustrate these connections, the Deep Sea Mining Campaign have produced an infographic[3] to lay bare the web of connections tying Gerard Barron, his family, and his friends - particularly the father-son duo Robert and David Heydon. Many of these associations were forged in the days of the bankrupt Nautilus Minerals. They continue today with the entity Deep Sea Mining Finance (DSMF) that now controls Nautilus' assets as well as those involved in TMC. The return of Mr Paes-Braga to the fold adds another thread to this incestuous web. As a recent story in Wired reminds us, TMC "has burned through \$300 million. A substantial chunk of that cash wound up in Barron's pocket. He and his partner, Erika Ilves, a former executive at a company aiming to mine water on the moon whom Barron brought on as chief strategy officer, were together paid more than \$20 million in salary and stock options in 2021." [4] The seabed in international waters is the 'common heritage of (hu)mankind' as stated by the UN Convention that governs it. However, only a self-selected few will truly profit from mining it.



1. <https://investors.metals.co/news-releases/news-release-details/metals-company-and-low-carbon-royalties-form-strategic>
2. <https://www.sec.gov/ix?doc=/Archives/edgar/data/1798562/000110465922038029/tmc-20211231x10k.htm>
3. The research behind the infographic was conducted by Inclusive Development International. The infographic can be viewed and download online here: <https://dsm-campaign.org/2023/03/16/the-metals-company-seeking-to-clean-up-on-deep-sea-mining/>
4. <https://www.wired.com/story/deep-sea-mining-electric-vehicle-battery>

PanAust advancing Frieda project

PanAust Limited's subsidiary Frieda River Limited (FRL) is advancing its Frieda River project. The project is said to be one of the largest undeveloped copper and gold deposits in the world and offers PanAust excellent potential to establish a world-class, long-life copper-gold mining operation. FRL director Phil McCormack gave an update of the project to business editor SHIRLEY MAULUDU. March 16, 2023, The National Business



An aerial view of the Frieda River project site in West Sepik. — Pictures courtesy of PANAUST

Q: Tell us briefly about the company, PanAust Ltd

McCormack: PanAust Ltd is an Australian company which has copper and gold operations, with two mines operating in Laos and additional pre-development and exploration opportunities in Laos,

Papua New Guinea, Myanmar, and Chile. FRL is a PNG-incorporated company and is the project proponent. PanAust took over FRL from Xstrata in August 2014. It aims to maintain at least a 90 per cent PNG national workforce.

The company's head office is in Brisbane, Australia. It is a wholly-owned subsidiary of the Guangdong Rising Holding Group Co Ltd, a Chinese company, owned by the People's government of Guangdong.

Q: Explain the Frieda River Project?

McCormack: The Frieda River project represents a nation-building opportunity for Papua New Guinea and a transformative sustainable development opportunity for the Sepik region. It is a copper-gold project, a major undeveloped greenfield project in West Sepik. The project is located approximately 200 km from Papua New Guinea's northern coast. Its infrastructure and transport corridors are in the East and West Sepik. The project would help build stronger and more viable communities by establishing necessary public infrastructure, generating skilled employment, and creating business opportunities for local people.

The Frieda River project comprises the:

- **FRIEDA River Copper-Gold Project:** The project proposal is based on the extraction of Horse-Ivaal-Trukai- Ekwai-Koki (Hitek) porphyry copper-gold deposit which contains an estimated 12 million tonnes (Mt) of copper and 19 million ounces (Moz) of gold. The Hitek deposit represents one of the world's largest undeveloped copper resources;
- **FRIEDA River Hydroelectric Project:** It will have an installed capacity of 600 megawatts, configured to generate up to 490 megawatts;
- **SEPIK Infrastructure Project:** This project will see FRL build shared-use transport and communications infrastructure that will enable social and economic development in one of the least developed parts of Papua New Guinea; and,
- **SEPIK Power Grid Project:** The power grid project consists of a 370-km long 275 kV transmission line (Northern transmission line) from the Frieda River hydroelectric project to the Indonesian border via Vanimo. The northern transmission line would be located within the infrastructure corridor and would provide power for the Frieda River copper-gold project (the mine), including the offsite facilities at Green River and Vanimo. The transmission line would follow the existing Vanimo-Jayapura Highway from Vanimo to the Indonesian border.

Q: What is the current status of the project?

McCormack: The project is in the permitting phase. It has applied for a special mining lease and is the subject of an environmental impact assessment. The project is yet to receive the approvals and cannot begin development activities until those approvals are granted. FRL continued to work with the Minerals Resources Authority (MRA) and Conservation and Environmental Protection Authority (Cepa) to progress the permitting and approval requirements related to the updated proposal for development and environment impact statement submitted in December 2018.

Cepa's independent peer review process for the large dam design was completed early last year and in August, after the Coronavirus (Covid-19) -caused hiatus, Cepa recommenced regulatory stakeholder activities. The Cepa-led statutory community roadshow was implemented in three phases last year. Since then, FRL has pursued the project in full compliance with the required project approvals and stakeholder engagement legislative processes in PNG, as well as its policies, standards, and procedures.

Q: What minerals will the company be mining?

McCormack: The project proposal is based on extraction of Hitek porphyry copper-gold deposit which contains an estimated 12 million tonnes (Mt) of copper and 19 million ounces (Moz) of gold. The Hitek deposit represents one of the world's largest undeveloped copper resources and is critical to meeting increased global demand fuelled by clean energy transition.

Q: What method of mining will be used in the Frieda River project?

McCormack: The Frieda River project proposal is to mine Hitek porphyry copper-gold deposit using a large-scale open-pit method.

Hitek ore would be processed using proven, conventional comminution and flotation processes to yield a high-quality copper-gold concentrate free of deleterious elements. Concentrate slurry would be piped to Vanimo where it would be dewatered prior to export in ocean freighters. The project's proposed initial operating life is expected to be 33 years. The large Hitek mineral resource, together with additional known deposits – including the high-grade Nena deposit – are likely to support a mine life extension beyond 45 years.

Q: What are the company's plans for the project this year?

McCormack: Our ambition is to construct a world-leading mine with minimal carbon emissions, which is enabled by the hydro power dam. The mine, dam and related infrastructure would be designed and built according to best practice international standards. The Frieda River hydroelectric project would be configured to generate up to 490 megawatts of clean power, making it PNG's largest single renewable power generation facility. The project would perform a critical role by bringing additional copper supply to meet forecast global demand, while remaining environmentally and socially sustainable. This year, FRL will continue to support the permitting process and maintain its stakeholder engagement activities at the local, provincial and national level.

Q: How much has been invested so far in developing the project?

McCormack: More than US\$200 million (about K686.13 million) has been invested in advancing the project since 2014.

Q: What is the waste disposal method that the company is planning for the project?

McCormack: FRL's strategy for limiting impact on the downstream environment for the Sepik development project is to store and contain all potentially acid forming mining waste rock and tailings underwater within the dam reservoir and to complete active treatment of water that comes into contact with mining activities (contact water).

Underwater disposal limits exposure to air, which prevents contained sulphide minerals from becoming detached from the waste (leaching) and minimises downstream riverine pollution. The dam and mine are intrinsically linked.

The mine requires a dam to safely store tailings and waste. With the dam comes opportunity to generate sustainable green power. The dam will continue to operate and provide power and income to the region for many years after the mine is closed and is designed to operate for over 100 years, during which it can provide power to local communities. Underwater placement of waste rock and tailings within a hydroelectric dam on-site was selected for secure storage of sediment, mine waste rock and process tailings. A hydro dam has higher elements of safety as compared with a conventional tailings dam.

Q: Which communities, wards or districts will be directly impacted by the project?

McCormack: Our special mining lease area landowner communities comprise villages from the Miyan and Telefol language groups in Telefomin. A village from the Payamo language group in Ambunti is landowner of the lease for mining purposes for which the proposed Frieda River hydroelectric project would be built. Other impacted communities include landowners, land users and host communities along the infrastructure corridor, Sepik River, within East and West Sepik.

Q: There were concerns, especially in terms of environmental impacts, raised by individuals from the impact provinces. How is the company addressing that?

McCormack: FRL recognises that sustainable business development is essential for our ongoing success.

We strive to ensure that our activities are:

- ENVIRONMENTALLY sound;
- TECHNICALLY appropriate;
- FINANCIALLY profitable; and,
- SOCIALLY responsible.

These are the guiding principles that determined the design of the project.

Our commitment to sustainability is to ensure that our activities are carried out in a socially and environmentally responsible way, delivering a project that both FRL and the communities that host us, can be proud of. Maintaining relationships with host communities underpins FRL's core value of

meaningful engagement to address mutual needs and build opportunities. Part of this commitment is enabling genuine and inclusive community engagement with those impacted by our operations, including listening to and actioning the feedback and the issues raised by our communities. The company has hosted community leaders forums (CLFs) since 2014 when it acquired its majority shareholding in the project. The company recognised the importance of CLFs and restarted these with the project area communities when it acquired its majority shareholding in the project.

Kumul Minerals Holdings pays K105 million as dividend to Govt

By SHIRLEY MAULUDU, March 16, 2023, The National Business

KUMUL Minerals Holdings Ltd (KMHL) has paid K105 million as dividend to the State. State Enterprises Minister William Duma received the cheque payment from KMHL chairman Dr Ila Temu yesterday. Temu said the dividend was made possible through the company's 67 per cent shareholding in Ok Tedi Mining Ltd. "Kumul Minerals hold 67 per cent in Ok Tedi, through the Government transfer that occurred a couple of years ago," he said. "The other 33 per cent of Ok Tedi is owned by Fly provincial government and CMCA (community mine continuation agreement) landowners." Temu said the dividend related to the 2022-year dividend declared by the mine in which it declared a total of K368 million and 67 per cent of that was the dividend to for KMHL. "That amount is K210 million that is being declared by Kumul Minerals and under the Government approved dividend policy, the State and Kumul share equally any benefit that is declared in any year," he said.

"The amount that we are presenting now to the State through the trustee delegate and minister is K105 million." Temu added that it was the first time that Kumul Minerals was making a dividend payment to the State. "Although KMHL acquired the 67 per cent some years back, it is the first time that the dividend is actually flowing through Kumul Minerals and then back to the State," he said. "We retained some of the dividends for our operations and our investment opportunities." Duma thanked KMHL for paying the dividend. "We will put this money to good use," he said. "As you know, we have a deficit budget of about K4 billion (in this year's budget). "The need to fund projects particularly in the areas of law and order, health, education, are increasing every year, with an increasing population. The challenge is on those companies that are in the income generating sector, particularly those owned by the State, to do what they can do and deliver dividends."

Opinion, Guest Essay

A Rush to Mine the Deep Sea Is Underway. It Must Be Stopped.

The New York Times, March 15, 2023, by Diva Amon

Descending to the depths of the ocean is part of my job as a deep-sea biologist. Traveling three miles below the sea surface never ceases to uplift me. I've seen strange and wonderful creatures, from anemones with seven-foot tentacles that billow across the seafloor, to sharks that glow in the dark, 1,000-year-old corals and blind white crabs [sustained](#) by bacteria they cultivate on their claws. The deep sea is a trove of biodiversity, rich in living resources used in medicines and critical in [regulating the climate](#) and providing spawning and feeding grounds for fish. The planet would not be the same without it. But the ocean is facing plenty of problems. Pollution can be found in every marine ecosystem, from the estimated [11 million metric tons](#) of plastic entering the ocean every year to toxic chemicals [accumulating](#) in animals living in the deepest deep-sea trenches. The waters are becoming warmer, more acidic and less rich in oxygen. Twenty percent to 25 [percent of marine species](#) are already at considerable risk of extinction. Now a new threat looms.

The ocean could be the next frontier for mining. An obscure but consequential organization formed under the United Nations Law of the Sea treaty is finalizing regulations for mining activities in over

[40 percent](#) of the planet’s surface. Approval of these rules, in the works since 2014, could come possibly as soon as July. After that, a scramble to mine the deep sea could commence. And once it begins, there will be little hope of reining it in. Why the rush? In June 2021, the Pacific Island nation of Nauru, one of the 167 member nations plus the European Union of the regulatory organization, the [International Seabed Authority](#), invoked a provision of the treaty that requires the authority to adopt rules for deep-sea mining within 24 months. Nauru, one of the world’s smallest nations, with a population of around 11,000, is the sponsor of Nauru Ocean Resources Inc., a subsidiary of a Canadian firm, the Metals Company. That company wants to mine parts of a region known as the Clarion-Clipperton Zone, between Hawaii and Mexico, for [polymetallic nodules](#). These nodules contain many of the base metals now required to make batteries, and the Metals Company says they offer “the cleanest path toward electric vehicles.” (Companies must be [sponsored](#) by a country under the treaty to engage in mining.)



Credit...Myriam Wares

Nauru’s action could open much of the high seas to deep-sea mining, permanently altering near-pristine and vast areas of the ocean. Some deep-sea mining companies argue that extracting minerals such as copper, nickel and cobalt from the ocean floor is more sustainable than extracting them from land-based mines. But what little independent science there is to back their claims is contested. I led a team of 30 other scientists from around the world in a [comprehensive study](#) published in the journal *Marine Policy* last year that found that “there are few categories of publicly available scientific knowledge comprehensive enough to enable evidence-based decision-making regarding environmental management” of deep-sea mining. We added that “closing the scientific gaps” is a “monumental task that is essential to fulfilling the overarching obligation to prevent serious harm and ensure effective protection, and will require clear direction, substantial resources and robust coordination and collaboration.” We’re still nowhere near closing those gaps.

There is also a growing body of evidence that mining hundreds of thousands of square miles of ocean floor could inflict irreversible damage on ocean health. Huge machines would be sent down to the ocean floor that scrape up minerals — and everything else in their way — creating plumes of sediment that would spread for many miles into the surrounding waters and emitting noise and light that disturb dark, quiet ecosystems in the deep seas that took eons to develop. A [recent analysis](#) of

the seabed authority's process of assessing the environmental impact of exploration found it to be "severely deficient, both in procedure and in substance." The study was the work of scientists and legal scholars from 11 nations. What's also deeply worrisome is that the companies and countries lobbying the seabed authority to open the deep sea to mining don't appear to prioritize equity in their plans. The oceans and their resources are, as the Law of the Sea [puts it](#), "the common heritage of mankind" and are an especially integral part of the culture and well-being of ocean-dependent communities. The resources are supposed to be "vested in mankind as a whole," according to the U.N. treaty, and should be managed to ensure that any mining benefits as many people as possible. Right now, there is no mechanism to accomplish this.

[Concerns](#) have also been raised that the seabed authority doesn't display the transparency, objectivity and science-based decision-making critical for [overseeing](#) such a fraught and nearly impossible-to-monitor industry. There is no robust and inclusive engagement of all those with a stake and no transparent decision-making processes. Because of these issues, deep-sea mining lacks "social legitimacy," as seven ocean experts and I argued last month in a [comment](#) in the journal *npj Ocean Sustainability*. Without that legitimacy, we said, "investors and consumers might reject seabed minerals and their use." A seabed authority meeting scheduled to begin Thursday in Jamaica offers the opportunity to put the brakes on this dash to excavate the deep sea. Member countries still have much to deliberate, and it now seems likely that they will be unable to reach an agreement in the near future, much less by the July 9 deadline imposed by Nauru's action. What that will mean is [not entirely clear](#) should mining companies submit applications to begin excavations in the absence of regulations.

More than [700 ocean experts](#) have signed a statement urging a delay of deep-sea mining. Some [major companies](#) and banks have pledged similar support or created policies that exclude financing of deep-sea mining. And 12 countries have called for a moratorium on deep-sea mining, with [France going further and pressing for an outright ban](#). Fortunately, it's not too late for governments to stop this rush before it starts. More countries must step up and say they will not approve deep-sea mining unless and until there is sufficient scientific research on the potential risks and strong regulations can be put in place to protect these hidden but vitally needed ecosystems. Once a moratorium is in place, countries then can take time to assess whether we really need to mine the deep ocean at all. [Diva Amon](#), a marine biologist, is the director of SpeSeas, an ocean conservation group based in Trinidad and Tobago, and a researcher and science adviser at the Benioff Ocean Science Laboratory at the University of California, Santa Barbara.

Alluvial mining a hazard

Post-Courier, 15 March 2023

ALLUVIAL mining in certain areas of Central Bougainville is still causing destruction in the environment and small creeks and waterways are now brown in colour. The Post-Courier two weeks ago visited Kanavitu in the Atamo area of the Eivo-Torau constituency and spoke with locals there. Alluvial mining operations have now gone into 24/7 nonstop, even at night people are mining. Alluvial mining has now gone unregulated and totally abused, the sight of cash has now blinded people and they have forgotten about safety and regulations. The use of mercury is now widespread. People using it do not know the dangers of it. Karatapo Resources Limited public relations officer, Tony Metario, speaking to the Post-Courier, said rivers and streams and also small creeks for laundry and bathing are now polluted and people are not using them any more.

"The Panguna area and also us here in the Eivo-Torau constituency are living in a polluted environment because of unregulated alluvial mining and the use of dangerous chemicals such as mercury. "Fish in our rivers are the first ones that will leave and go somewhere safe for them. "If this issue

isn't addressed, we humans will also have to move." Mr Metario said. "Nobody is stopping you from doing alluvial mining but it must be controlled and regulated, apply for an artisanal licence from the mining department, get environmentalists and health inspectors to do checks and take samples of rivers and also test the fish and then tell us whether we can do alluvial mining or no. "Also as part of regulation, people should use their brains now that whatever they do up in the mountains will have an effect on the people living downstream and they must not do mining all the time, they should do it with control."

Trial set for case between dept and LOs

By BEVERLY PETER, March 15, 2023, The National

THE National Court has set trial for the case between a landowner association in the liquefied natural gas (LNG) project site in Hela and the Department of Petroleum and Energy to proceed in August. The case filed by Porali Wakaye as the chairman of Yarale Yangopia People's Association and the association against Department of Petroleum and Energy secretary David Manau, Minister Kerenga Kua and the State was mentioned at Waigani yesterday before acting Judge Tracy Ganaii. Judge Ganaii said she had considered that Wakaye and the Yarale Yangopia People's Association through their lawyer George Koure had complied with the court's directional orders given when the matter was mentioned last week.

"It seems that the matter is ready for a trial," she said. "Other applications for parties to join can be properly made before the court when ready." Judge Ganaii then set the trial for Aug 18 and adjourned the matter. Wakaye and Yarale Yangopia People's Association filed the proceeding claiming that the department was supposed to pay K30 million to the PDL's six landowners. Since there were three regions in DPL six, each region was allocated certain percentage of that money. It was before the court that Yarale Yangopia People's Association claimed that they were identified as being located in region two of the PDL six as one of the beneficiaries of the LNG project.

They claimed that region two in PDL six was supposed to receive 35 per cent of that money and that Wakaye as the chairman of the association was the right person to receive the cheque and distribute it. They further alleged that the department had issued a cheque payment of K5.7 million belonging to region two of the PDL six to another person who was not within region two. They said they had advised the department, but were unsuccessful and only noticed that a cheque was issued when that cheque was dishonoured by the bank upon presentation.

Minister unaware of K20mil royalty claim

March 15, 2023, The National

MINING Minister Sir Ano Pala says he will confirm reports of a promised K20 million royalty payment of Tolukuma gold mine landowners as he is not aware of the report. Sir Ano was responding to questions by Goilala MP Casmiro Aia on the status of the money promised to his people. "Can you tell us the status of the money promised to the people and clearly specify if the money is for the landowners or for the workers," he asked. Aia said the mine was currently closed and the K20 million promised to the landowners had not been given. Sir Ano said he was not aware of the money and he would look into it and advise him on the status of the funds.

He said the mine was not closed but rather the operations stopped due to its status. "When a mine closes there is a mine closure procedure one has to go through, and I don't think this was activated but because of its status, it has been closed," Sir Ano said. He said the mine was in transition and ownership had changed hands as some investors were reluctant to expand resources on the project.

Sir Ano said the mine had struggled to turn a profit because of its remoteness and lack of services and infrastructure such as roads making operations prohibitively expensive.

KPHL clarifies PNG LNG Kroton Equity option

By SHIRLEY MAULUDU, March 15, 2023, The National Business

KROTON Equity is not a policy but a commitment made in the PNG LNG project's umbrella benefit sharing agreement (UBSA), according to Kumul Petroleum Holdings Ltd (KPHL). A spokesperson was reacting to a recent statement by Gulf Governor Chris Haiveta who said the Kroton Equity should have a policy to govern it. During the launching of the Feed (front-end engineering and design) stage for the Papua LNG project last week, Haiveta told KPHL and the Mineral Resources Development Company (MRDC) to have a policy in place for Kroton. "Just a word of caution to Kumul and MRDC (on) the Kroton Equity: Please have a policy sorted out for this because we do not want to face the problems we currently have with PNG LNG," Haiveta said. Yesterday, the KPHL spokesperson told The National: "The Kroton Equity option is not a policy.

"It was a commitment made in the PNG LNG project UBSA signed by all the stakeholders in that project. "And KPHL has implemented this commitment. "Any matter in relation to shareholding or equity in the Papua LNG project would be discussed with other project related benefits at the Papua LNG development forum, which is the appropriate forum for discussion of such matters since all project stakeholders will be participating. "The roles of MRDC and KPHL are to hold project shareholding on behalf of the landowners/local level governments/provincial governments and the State once the outcome of the development forum is agreed to." Kroton Equity beneficiary groups exercised the Kroton Equity option in 2016. Under the 2009 Kokopo UBSA, the Government granted Kroton Equity beneficiary group an option to acquire an indirect 4.27 per cent interest in the PNG LNG project by buying 25.75 of the shares in Kumul Petroleum Kroton Ltd, which then was known as Kroton No.2 Ltd. It is the special purpose subsidiary of Kumul Petroleum that holds the State's 16.57 per cent interest in the PNG LNG project.

China to step up deep sea mining efforts

Frik Els, mining.com, March 14, 2023



A polymetallic nodule is captured on a seamount deep in the North Atlantic Ocean during the 2021 North Atlantic Stepping Stones expedition. Credit: U.S. Geological Survey and NOAA Ocean Exploration.

[China Daily reports](#) that the country will make renewed efforts to join the race to mine the deep sea for critical minerals. The English language government-run paper says China lags behind the West in terms of research, technology and hardware for seabed mining which it calls “a new frontier for international competition.” Ye Cong of Wuxi-based China Ship Scientific Research Center, a subsidiary of the China State Shipbuilding Corp, said mining the metals found in nodules on the sea-floor – mainly nickel, copper, cobalt and manganese – will “help us reduce the heavy reliance on foreign suppliers”. Ye is a member of the 14th National Committee of the Chinese People’s Political Consultative Conference, a policy shaping body, that was held last week. China Daily reports the state shipbuilding company is known for its deep sea submersibles like the Jiaolong (Sea Dragon) and the Shenhai Yongshi (Deep Sea Warrior).

Mining exemption

Last week the United Nations agreed to the first ever High Seas Treaty after more than a decade of negotiations by member states. The treaty aims to set aside for conservation around 30% of the world’s international waters and provide rules for its exploitation. [Climate Change News](#) reports deep sea mining is exempted from environmental impact assessment (EIA) regulations established under the UN treaty, which will remain the remit of the International Seabed Authority. ISA has been working on a framework for deep sea mining since 2014 and is set to issue its [approved mining code within months](#). CCN notes that the ISA accelerated the pace of negotiations after the island state of Nauru “triggered an obscure provision forcing approval by July 2023,” adding that should the agency miss the deadline, “companies could submit a request to begin full-scale mining, even without any rules in place.” The nodules are found on abyssal plain sediments at about 3,500–6,000m water depths and the USGS expects that about 35–45% of the demand for critical metals will come from deep-ocean mines by 2065.

Local sues ExxonMobil for breach of oil and gas laws

BY TODAGIA KELOLA, Post-Courier, 14 March 2023

OPERATOR of the US\$19 billion (K66 billion) PNG LNG Project, ExxonMobil has been taken to court for alleged breach of the Oil & Gas Act 1998, PNG LNG Agreement and the National Content Plan. A Papua New Guinean and a local from the LNG gas project area, Dennis Kai from Tundaka Village, Komo Margarima District, Hela Province, and his company Eco Care Engineering Limited have filed an originating Summons in the National Court seeking certain declarations against the world’s largest publicly traded international oil and gas company. Mr Kai named ExxonMobil as the first defendant and Total Waste Management Limited, now TWM PNG Limited (TWM), as second defendant. In court documents filed, Dennis Kai stated that he is the sole owner and managing director of the company called Eco Care Engineering Limited (Eco Care), a 100 per cent local company. He deposed that Eco Care was a former contractor in the waste management contract at the PNG LNG plant site.

Eco Care’s involvement in the PNG LNG Project goes back to 2010 during the early works stage of the project. At that time Eco Care was contracted by Alliance Group through a water cart to deliver water to the project site. Alliance Group was engaged by Esso Highlands/ExxonMobil to provide camp management service at the plant site during the construction stage. While working for Alliance Group, Eco Care was invited by Esso High[1]lands/ExxonMobil for screening and assessment process through its IBBM centre at Konedobu, Port Moresby, for purpose of awarding a contract at the plant site. Eco Care was interviewed by Chiyoda JGC-JV, the major EPC contractor of ExxonMobil at the plant site, and it was awarded a waste management contract. The contract was for 36 months, which was the duration of the construction period of the project. However, it was ex[1]-tended for another 18 months by Chiyoda JGC-JV until mid-2014.

In June 2014, ExxonMobil approached Eco Care and engaged it to continue with the waste management service through a purchase order for a period of one year (June 2014 to June 2015). During the one year period, Eco Care met all ExxonMobil's Operational Integrity Management Systems (OIMS) which covers all safety, health, security, and operations management system for the project leading into the operational phase of the project with an intention to remain long term with ExxonMobil during the operation of the project. Eco Care compliance with OIMS is its major achievement in the PNG LNG Project and that is kept in the ExxonMobil's record to date. Dennis Kai alleges that during the term of Eco Care's contract, an individual who was the logistics superintendent of ExxonMobil conspired with another person from Total Waste Management Limited, now TWM PNG Limited (TWM), in 2014 and awarded the waste management contract to TWM for a 10-year period.

The formal engagement of TWM took place in 2015, after Eco Care's one-year term came to an end. At the relevant time, the owner of TWM was an Australian thus the company was owned by foreign individuals and entities. Dennis Kai also claims in his Court papers that TWM did not go through the ExxonMobil IBBM process nor did it meet the OIMS like Eco Care did and was given the contract on a golden plate by the logistics superintendent of ExxonMobil contrary to stringent procurement and tender process that existed within the system of ExxonMobil. He said his company Eco Care was never given a transparent opportunity to bid with TWM.

He is seeking declarations that the waste management contract entered into between the first and second defendants in 2015 for provision of waste management services at the PNG LNG Project plant site was breached and that a declaration that the waste management contract entered into between the first and second defendants in 2015 for provision of waste management service at the PNG LNG Project plant site was illegal, unlawful and with no legal effect from the beginning. ExxonMobil PNG Limited confirmed receiving the court documents and stated that "as the matter is before the Court, ExxonMobil is unable to comment further".

Papua LNG vetting process to end in May, minister says

By PETER ESILA, March 14, 2023, The National Business

LANDOWNERS of the Papua LNG project will be gazetted by the end of May, says Petroleum and Energy Minister Kerenga Kua. Kua said from there, landowners should form their companies to be able to participate in the project to fulfil the national content policy. Kua, who is also Sinasina-Yonggomugl MP, said the landowner identification process was that the licence holder (TotalEnergies) did its investigation and gave their findings to the department which then verified the information. "Once this is done by the Department of Petroleum, we then prepare a gazettal that I will sign called a ministerial determination, once that is done then everybody knows, the Government and the developer TotalEnergies, they know who the landowners are, and they will organise those people to pick up contracts and start contributing to the project," he said. He said for the Papua LNG, TotalEnergies had completed its clan vetting and had identified the clans and the department was in the process of verifying these clans.

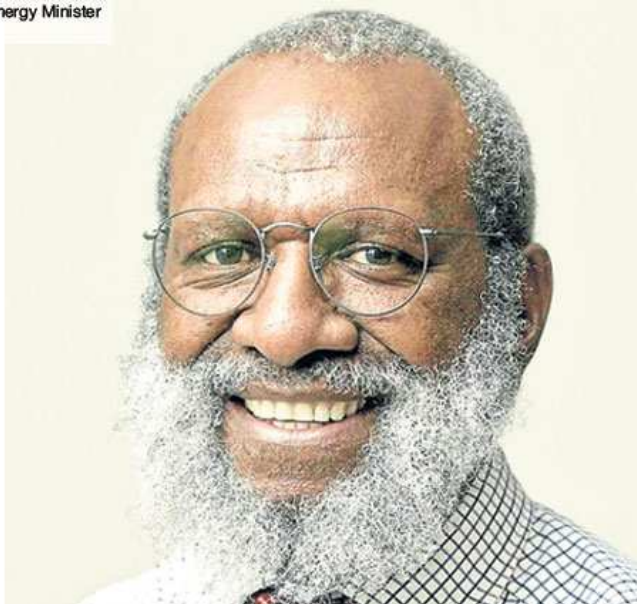
Petroleum and Energy secretary David Manau confirmed that the final list would be ready by the timeline. "The minister's timeline is end of May, we received the full-scale social mapping studies from TotalEnergies around last November, that covers the Petroleum Development Licence area and the pipeline coming downstream, the landowner section here in Caution Bay are well defined already, they are PNG LNG landowners, there are various sections of the waterways which may be identified in the process," Manau said. Manau said the department's reviews had been completed and March 17 had been set to carry out the landowner beneficiaries identification. He added that this would entail field work, including field visits and consultations with Total, and this would lead

to a process of landowner identification and verification up to May. “We should have the draft determinations ready for the minister, and make a decision on the determinations,” he said.

Papua LNG set to bring in K75bil

By PETER ESILA, March 13, 2023, The National Business

Petroleum and Energy Minister
Kerenga Kua



PETROLEUM and Energy Minister Kerenga Kua says the Papua LNG project will bring in K75 billion over the next 20 to 25 years of production life. Kua said the announcement of the start of the front end engineering design (Feed) was good news for a struggling Papua New Guinea economy. “We have not issued a development licence but we will, we need the support of the people of PNG and all stakeholders,” he said. “PNG and its stakeholders will be able to make about K75 billion, over the life of the project, that is a lot of money. “If we are going to be earning K75 billion over the life of the project, then you can see, it will be a major impact on our revenue. “It will be spread over, the estimated life span of the Papua LNG and is about 15 years based on the current reservoir, so they will crank up production slowly, but when they reach the peak production for 15 years, after 15 years, the production will slow down because the resource reservoir will start to diminish, so the diminishing period for the project is for a 10-year period.

“The benefits will be projected over a 20 to 25-year period when we can receive substantial benefits out of the project. You can spread it over a 20-year period and you will see what annual gains we will make. “That benefit is inclusive of what comes to the State, what goes through Kumul Petroleum Holdings Ltd (KPHL) and what comes to the State directly as levies, to the landowners as royalties, to provincial governments, all of us put together, we are going to be collecting and sharing in the next 20 years or so.” The estimated cost to develop the project (or capital expenditure) is US\$10 billion (about K35.2 million) and the cost gross revenue estimated to be generated within the project life span is approximately US\$61.8 billion (about K217.6 billion). The net project cash-flow for the parties are US\$22.5 billion (about K79.2 billion) and US\$6.4 billion (about K22.5 billion) for the joint venture and the State respectively.

The Mining Industry's Next Frontier Is Deep, Deep Under the Sea

Companies are diving to the bottom to scoop up metals essential for our EV-driven future. But how much ocean are we willing to sacrifice?

Vince Beiser, Wired, April 12, 2023

In October of last year, an enormous new creature appeared on the seabed of the Pacific Ocean, about 1,400 miles southwest of San Diego. It was a remote-controlled, 90-ton machine the size of a small house, lowered from an industrial ship on a cable nearly 3 miles long. Once it was settled on [the ocean floor](#), the black, white, and Tonka-truck-yellow contraption began grinding its way forward, its lights lancing through the darkness, steel treads biting into the silt. A battery of water jets mounted on its front end blasted away at the seafloor, stirring up billowing clouds of muck and dislodging hundreds of fist-sized black rocks that lay half-buried in the [sediment](#). The jets propelled the lumpy stones into an intake at the front of the vehicle, where they rattled into a steel pipe rising all the way back up to the ship. Air compressors pushed the rocks up in a column of seawater and sediment and into a shipboard centrifuge that spun away most of the water. Conveyor belts then carried the rocks to a metal ramp that dropped them with a clatter into the ship's hold. From a windowless control room nearby, a team of engineers in blue and orange coveralls monitored the operation, their faces lit by the polychromatic glow from a hodgepodge of screens.

The ship, called the *Hidden Gem*, was a former oil-drilling vessel nearly 800 feet long, retrofitted for sea mining by the Metals Company, an international firm officially headquartered in Canada. This was the first test of its system to collect the ancient black stones. They are officially known as polymetallic nodules, but the Metals Company's CEO, Gerard Barron, likes to call them "batteries in a rock." That's because the stones happen to be [packed with metals](#) that are essential for manufacturing electric cars—a [market that is surging](#) worldwide. Barron's company is at the front of a pack of more than a dozen [enterprises](#) slaving over the billions of dollars that could be reaped from those little subsea rocks. The world's long-overdue, fitful [transition to renewable energy](#) is hobbled by an Achilles' heel: It requires staggering quantities of natural resources. Manufacturing enough electric vehicles to replace their fossil-fueled counterparts will require billions of tons of [cobalt](#), [lithium](#), copper, and other metals. [To meet the exploding demand](#), mining companies, carmakers, and governments are scouring the planet for potential mines or expanding existing ones, from the deserts of Chile to the rain forests of Indonesia. Meanwhile, what might be the richest source of all—the ocean floor—remains untapped. The US Geological Survey estimates that 21 billion tons of polymetallic nodules lie in a single region of the Pacific, containing more of some metals (such as nickel and cobalt) than can be found in all the world's dryland deposits.

"Here's one of them," Barron said when we met recently in the lobby of a chic Toronto hotel, as he casually pulled one of these geologic oddities out of his jacket pocket and handed it to me. Barron is a fit, muscular Australian in his mid-fifties, with swept-back dark hair, a nautical beard, and craggy Kurt Russell-esque looks. His jeans, black boots, and wristloads of leather bracelets lend him a roguish air. He has just flown in from London for a big mining conference. For years, he's been traveling the world to talk up deep-sea mining to investors and government officials. He and other would-be sea miners argue that collecting nodules from the deep will be not only cheaper than traditional mining but also gentler on the planet. No rain forests uprooted, no Indigenous peoples displaced, no toxic tailings poisoning rivers. Barron may finally be on the brink of achieving his goal of mega-scale mining on the ocean floor. The Metals Company has tens of millions of dollars in the bank and partnerships with major maritime companies. The *Hidden Gem*'s foray last October marked the first time since the 1970s that any company had successfully trialed a complete system for harvesting nodules.

The main thing holding the company back is international law, which currently forbids deep-ocean mining. That may be about to change, however. Last year, the Metals Company teamed up with the

tiny South Pacific island nation of Nauru to trigger an obscure process that could let them bypass the international prohibition and get a license to start full-scale operations as early as July 2024. That prospect has sparked an outraged backlash. Environmental groups, scientists, and even some corporations in the market for battery metals fear the potential havoc of seabed mining. The oceans provide much of the world’s biodiversity, a significant chunk of humanity’s food, and the planet’s biggest carbon sink. No one knows how such an unprecedented incursion would affect the many life-forms that live in the abyssal depths, the marine life farther up the water column, or the ocean itself. The European Parliament and countries including Germany, Chile, Spain, and several Pacific island nations have joined dozens of organizations in calling for at least a temporary moratorium on deep-sea mining. Several banks have declared they won’t loan to ocean-mining ventures. Corporations including BMW, Microsoft, Google, Volvo, and Volkswagen have pledged not to buy deep-sea metals until the environmental impacts are better understood. Even Aquaman is opposed: Jason Momoa narrated a recently released documentary denouncing sea mining.

“This has the potential to transform the oceans, and not for the better,” says Diva Amon, a marine scientist who has worked extensively in the main area of the Pacific targeted for mining, including as a contractor for one of the sea-mining companies. “We could stand to lose parts of the planet and species that live there before we know, understand, and value them.” None of that deters Barron. “The biggest challenge to our planet is climate change and biodiversity loss. We don’t have a spare decade to sit around,” he declares. By the end of the *Hidden Gem*’s trial last October, the vehicle had delivered more than 3,000 tons of the stones, mounded up in a glistening black pyramid nearly four stories high. “This,” Barron promised the press, “is just the beginning.”



The Metals Company uses a former oil-drilling vessel, the *Hidden Gem*, to collect polymetallic nodules from the seafloor. Courtesy of Richard Barron/TMC

The nodules have been growing, in utter blackness and near-total silence, for millions of years. Each one started as [a fragment of something else](#)—a tiny fossil, a scrap of basalt, a shark’s tooth—that drifted down to the plain at the very bottom of the ocean. In the lugubrious unfolding of geologic time, specks of waterborne nickel, copper, cobalt, and manganese slowly accreted onto them. By now, trillions lie half-buried in the sediment carpeting the ocean floor. One March day in 1873, some of these subaqueous artifacts were dragged for the first time into sunlight. Sailors aboard the *HMS Challenger*, a former British warship retrofitted into a floating research lab, dredged a net along the sea bottom, hauled it up, and dumped the dripping sediment onto the wooden deck. As the expedition’s scientists, in long trousers and shirtsleeves, eagerly sifted through the mud and muck, they noted the many “peculiar black oval bodies” that they soon determined were concretions of valuable minerals. A fascinating discovery, but it would be almost a century before the world began to dream of exploiting these stones.

In 1965, an American geologist published an influential book called *The Mineral Resources of the Sea*, which generously estimated that the nodules contained enough manganese, [cobalt](#), nickel, and other metals to feed the world's industrial needs for thousands of years. Mining the nodules, he speculated, "could serve to remove one of the historic causes of war between nations, supplies of raw materials for expanding populations. Of course it might produce the opposite effect also, that of fomenting inane squabbles over who owns which areas of the ocean floor." In an era when population growth and an embryonic environmental movement were fueling concerns about natural resources, seabed mining suddenly got hot. Throughout the 1970s, governments and private companies rushed to develop ships and rigs to pull up nodules. There was so much hype that in 1972, it seemed completely plausible when billionaire Howard Hughes announced that he was dispatching a custom-built ship into the Pacific to search for nodules. (In fact, the CIA had recruited Hughes to provide cover for the ship's Bond-esque mission: to covertly retrieve a sunken Soviet submarine.) But none of the actual sea miners managed to come up with a system that could do the job at a price that made sense, and the fizz went out of the nascent industry.

By the turn of the 21st century, advancing marine technology made sea mining seem plausible again. With GPS and sophisticated motors, ships could float above precisely chosen points on the seafloor. Remotely operated underwater vehicles grew more capable and dove deeper. The nodules now seemed to be within reach, just at the moment when booming economies such as China's were ravenous for metals. Barron saw the potential bonanza decades ago. He grew up on a dairy farm, the youngest of five kids. (He now has five of his own.) "I knew I didn't want to be a dairy farmer, but I loved dairy farm life," he says. "I loved driving tractors and harvesters." He left home to go to a regional university and started his first company, a loan-refinancing operation, while still a student. After graduating, he moved to Brisbane "to discover the big, wide world." Over the years, he has been involved in magazine publishing, ad software, and conventional car battery operations in China.

In 2001, a tennis buddy of Barron's—a geologist, former prospector, and early web-hosting entrepreneur named David Heydon—pitched him on a company he was spinning up, a sea-mining outfit called Nautilus Minerals. Barron was fascinated to learn that the oceans were filled with metals. He put some of his own money into the venture and rounded up other investors. Nautilus wasn't going after polymetallic nodules, but rather what seemed like an easier target: underwater formations called seafloor massive sulfides, which are rich in copper and other metals. The company struck a deal with the government of Papua New Guinea to mine sulfides off the country's coast. (Under international law, countries can do basically whatever they want within their Economic Exclusion Zones, which extend up to 200 miles from their coastlines.) It sounded good enough to attract half a billion dollars from investors, including Papua New Guinea itself.

But in 2019, after spending some \$460 million, Nautilus went bust. Neither Barron nor Heydon lost any of their own money: Both had sold their shares about a decade earlier, with Barron clearing about \$30 million in profit. Papua New Guinea, where more than half the population lives in poverty, was out \$120 million. "It wasn't my business," Barron tells me. "I was just supporting David, really." Heydon, meanwhile, was building a company called DeepGreen—rebranded in 2021 as the Metals Company—[this time pursuing polymetallic nodules](#). By then, the growing demand for electric vehicles had added both a new potential market and an extra environmental justification for the project. Barron came on as CEO, and several other Nautilus alums joined up, including Heydon's son Robert. Along with other would-be miners, they started knocking on the door of the International Seabed Authority.

Based in Kingston, Jamaica, the ISA has the contradictory tasks of protecting the ocean floor while organizing its commercial exploitation. Back in the 1980s, most of the world's nations—notably excluding the United States—signed a kind of constitution for the oceans, the United Nations

Convention on the Law of the Sea. Among many other things, the document established the International Seabed Authority to represent what are now its 167 member nations. The organization was charged with devising rules to govern the then-nonexistent deep-sea-mining industry. The testudinal pace of subsea geology is rivaled only by that of international bureaucracy, and the ISA has been working to develop those rules ever since. Until regulations are agreed upon, full-scale mining is prohibited. But in the meantime, the agency can grant miners the rights to explore specific areas and reserve them for commercial exploitation. The ISA also declared that private companies must partner with a member country. Even the tiniest member country will do.

By now, the Seabed Authority has granted permits to 22 companies and governments to explore enormous swaths of the Pacific, Atlantic, and Indian Ocean seabeds. Most are targeting nodules lying roughly 3 miles underwater in the Clarion Clipperton Zone, an expanse of the Pacific between Mexico and Hawaii measuring 1.7 million square miles. Holding the rights to three of the choicest parcels is Gerard Barron and the Metals Company. The company's chief financial officer recently told investors that those expanses could yield metals worth \$31 billion. Here's what makes all of this urgent. The mining ban has a loophole: the two-year trigger. A section of the treaty known as Paragraph 15 states that if any member country formally notifies the Seabed Authority that it wants to start sea mining in international waters, the organization will have two years to adopt full regulations. If it fails to do so, the treaty says the ISA "shall none the less consider and provisionally approve such plan of work." This text is commonly interpreted to mean mining must be allowed to go ahead, even in the absence of full regulations. "Paragraph 15 was appallingly drafted," says Duncan Currie, a lawyer for the Deep Sea Conservation Coalition, an international umbrella organization of dozens of groups. "Several countries dispute the idea that it means they need to automatically approve a plan of work."

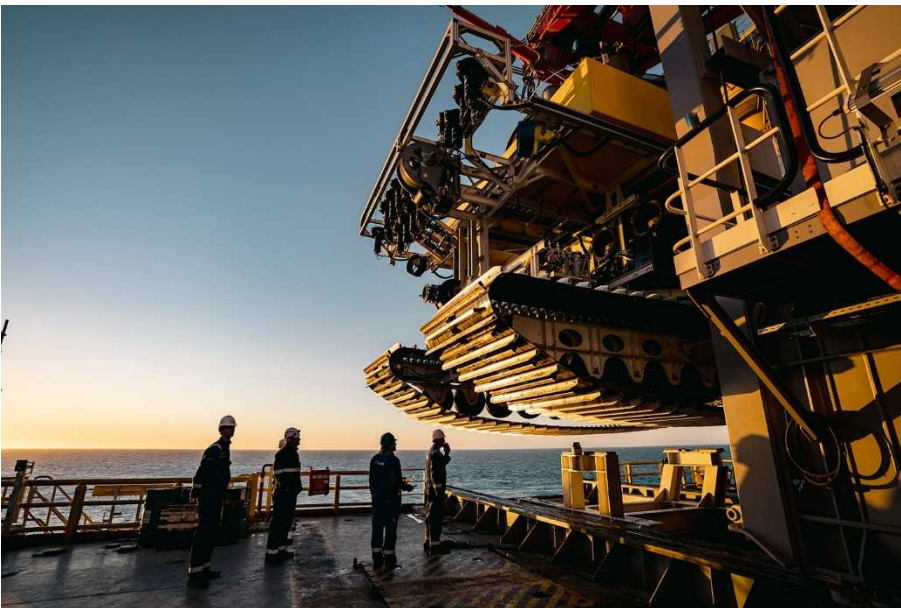
In the summer of 2021, the president of Nauru formally notified the Seabed Authority that the country, along with the Metals Company's wholly owned subsidiary, Nauru Ocean Resources, planned to begin sea mining. The two-year trigger has been pulled. The Metals Company's audacious gambit may have opened the door to deep-sea mining for the first time. "As an environmentalist," Barron says, he finds the opposition to his plans frustrating. "'Save the oceans' is a really easy slogan to get behind. I'm behind it!" he says. "I want to save the oceans, but I also want to save the planet." It might be true that getting metals from the seafloor is less damaging than getting them from land. But so far, few outside the industry are convinced. Very little is truly known about the deep ocean. Gathering data hundreds of miles from land and miles below the water's surface is extraordinarily difficult. A single day's work can cost up to \$80,000, and sophisticated tools such as remotely operated vehicles have only recently become available to many scientists. In 2022, 31 marine researchers published a paper that reviewed hundreds of studies on deep-sea mining. The authors also interviewed 20 scientists, industry members, and policy-makers; almost all said the scientific community needed at least five more years "to make evidence-based recommendations" for regulating the industry.

Every phase of the mining process entails serious risks for the world's oceans, which are already [severely stressed](#) by pollution, overfishing, and climate change. Start at the bottom. A massive piece of machinery-tank-treading over the pristine ocean floor, prying loose thousands of nodules from the beds where they have lain for millennia, is inevitably going to cause some damage. Corals, sponges, nematodes, and dozens of other organisms live on the nodules themselves or shelter beneath them. [Other critters](#) float around them, including anemones with 8-foot tentacles, rippling squidworms, glass sponges, and ghostly white Dumbo octopuses. "It's like Dr. Seuss down there," says Amon, the marine scientist. The nodules, Amon believes, are a critical part of the ecosystem that supports [all those creatures](#). And since they formed over millions of years, any harm that results from removing them "is in effect irreversible." Some scientists are also concerned that the huge amounts of carbon embedded on the ocean floor could be released, potentially interfering with the

[ocean's ability](#) to [sequester carbon](#). Silt and clay stirred up by the collector vehicles will also rise up into the water, creating plumes of sediment that could cloud the water for miles, linger for weeks or more, and suffocate creatures farther up the water column. Those plumes might also contain dissolved metals or other toxic substances that could harm aquatic life.

Moving upward, the noise and light emitted by the harvester vehicles and riser systems could affect any number of creatures that have evolved to live in silence and darkness. A recent study found that the racket from just one seabed mining operation could echo for hundreds of miles through the water, potentially interfering with aquatic organisms' ability to navigate and find food and mates. Once the nodules have been carried up to a ship, the silt-infused water that accompanied them will have to be dumped back into the sea, creating another potentially dangerous sediment plume. "We are talking about massive volumes. Fifty thousand cubic meters a day," says Jeff Drazen, an ocean scientist at the University of Hawaii who has also worked extensively in the Clarion Clipperton Zone, including on a research mission funded by the Metals Company. "That's like a freight train of muddy seawater every day." A 2022 report from the United Nations Environment Programme sums up the grim picture. Bottom line, according to the authors: "Current scientific consensus suggests that deep-sea mining will be highly damaging to ocean ecosystems." More than 700 marine science and policy experts have signed a petition calling for a "pause" on sea mining until more research has been conducted.

Barron insists that his company is committed to getting the science right and points out that it has funded 18 research expeditions (to fulfill the requirements of the Seabed Authority). "Last year I spent \$50 million on ocean science," he tells me. "I don't see anyone else doing that." By now, he argues, we know enough. "The lack of full scientific knowledge should not be used as an excuse not to proceed when the known impacts of the alternative—land-based mining—are there for us all to see," he says. It is a "certainty," he says, that sea mining will be less destructive. Whoever authored the Metals Company's own registration filing with the US Securities and Exchange Commission wasn't so categorical. That document notes that nodule collection in the Clarion Clipperton Zone is "certain to disturb wildlife" and "may impact ecosystem function" to an unpredictable extent. The filing adds that it may "not be possible to definitively say" whether nodule collection will do more or less harm to global biodiversity than land-based mining.



The nodule-collecting machine gets lowered to the ocean floor on a cable that's nearly 3 miles long. Courtesy of Richard Barron/TMC

The Metals Company's critics say the company basically isn't interested in what the science shows. One environmental scientist quit a contract job with the company, complaining in a since-deleted

LinkedIn post in 2020 that “the company has minimal respect for science, marine conservation, or society in general ... Don’t let them fool you. Money is the game. It’s business in their eyes, not people or the planet.” (Barron says this person is just a disgruntled ex-employee and that his charges aren’t true. My efforts to contact the scientist were unsuccessful.) The metals company is the only deep-sea mining outfit that is not backed by a major corporation or national government. It’s a startup, wholly dependent at this point on fickle investor capital. That could certainly help explain why Barron seems to be in a hurry to start mining. When I ask him why the company triggered the two-year rule, he interrupts to clarify: “Well, Nauru did. We didn’t. Nauru did.”

You’d have a hard time finding a more extreme example of despoliation of a tropical paradise, of a fall from Eden, than Nauru. When the first European ship came across this 8-square-mile island in the South Pacific, in 1798, the captain was so charmed by the locals’ friendly welcome, the fair weather, and the lovely beaches that he dubbed it Pleasant Island. But once an Australian geologist discovered that the spot was loaded with high-grade phosphate, much in demand as fertilizer, the outside world rushed in. Over the course of the 20th century, the nation of 12,000 people was stripped to the brink of oblivion. Its once-lush interior was reduced to what *The Guardian* described as a “moonscape of jagged limestone pinnacles unfit for agriculture or even building.” As the phosphate began running low in the 1990s, Nauru tried to set itself up as a no-questions-asked offshore banking haven, but so much ill-gotten cash poured in that Nauru was forced to tighten its regulations. The island’s next moneymaker was to rent some of its territory to Australia to use as an immigrant detention center. Detainees there have rioted, staged hunger strikes, and sewn their lips shut.



Onboard the ship, engineers in a control room monitor the mining robot's progress. Courtesy of Richard Baron/TMC

Given all that, it’s easy to see the economic appeal of teaming up with the Metals Company—especially since the mining zone is nowhere near Nauru. “Our people, land, and resources were exploited to fuel the industrial revolution elsewhere, and we are now expected to bear the brunt of the destructive consequences of that industrial revolution,” including sea-level rise, wrote Margo Deiyee, Nauru’s representative to the UN, in a December newspaper op-ed explaining why her country is supporting sea mining. “We’re not sitting back, waiting for the rich world to fix what they created.” Barron, who has never set foot on the island, insists that the relationship is a respectful partnership, not a modern version of colonial exploitation. “It’s horrible what happened to Nauru,” he says. They were absolutely fucked over by the Germans, the English, the Australians, and the Kiwis.” The Metals Company says it has doled out more than \$200,000 to support community programs of various sorts in Nauru, Kiribati, and Tonga, the two other island nations with which it has business

arrangements. “The real contribution,” he adds, “will be when we start paying royalties”—the partner nations’ yet-to-be-decided percentage of mining revenues.

The Metals Company’s own finances, however, are a bit shaky. Barron took the company public in September 2021, a few months after the two-year rule was triggered, claiming it had commitments of \$300 million from investors. Its stock topped \$12 per share a few days after it hit the market. But two key investors never delivered, leaving Barron and his team with only a third of their expected capital. The stock price plummeted and has remained stuck at around \$1 for months. The company is suing the faithless investors and is being sued itself by other investors who claim they were misled. Meanwhile, it has burned through \$300 million. A substantial chunk of that cash wound up in Barron’s pocket. He is paid nearly a million dollars each year in salary and bonuses. His partner, Erika Ilves, a former executive at a company aiming to mine water on the moon whom Barron brought on as chief strategy officer, is also paid handsomely. The pair were given stock options valued at nearly \$19 million in 2021 alone.

Bloomberg reporters and some environmental organizations have suggested that the company holds unfair leverage over its partner nations, and critics have drawn attention to the seemingly cozy ties between the Metals Company and the International Seabed Authority—in particular its secretary general, Michael Lodge. A recent *New York Times* investigation alleged that the ISA gave the company’s executives access to data indicating where the most valuable seabed tracts were located, then helped it secure the rights to those areas. Both the agency and the company say that all their dealings have been legal and appropriate. (Lodge also made his stance on environmentalists pretty clear, telling the *Times*: “Everybody in Brooklyn can say, ‘I don’t want to harm the ocean.’ But they sure want their Teslas.”) Between Barron’s outspokenness and his company’s legal and financial pyrotechnics, the Metals Company has drawn most of the media coverage around sea mining. “TMC is very bold, but the other companies are piggybacking on them,” says Jessica Battle, who heads the World Wildlife Fund’s campaign against sea mining. “Once one mining license is given, others will follow.” There’s an eager lineup. Belgian maritime giant Deme, high-tech hardware colossus Lockheed Martin, ship-builder Keppel Offshore & Marine, and the governments of South Korea, India, Japan, Russia, and China have launched dozens of research expeditions in recent years. China has two outfits licensed to explore for polymetallic nodules in the Pacific.

Deme’s sea-mining subsidiary, Global Sea Mineral Resources, may be best positioned to take the lead if the Metals Company stumbles. “They’ve got the backing of a multibillion-dollar company and access to European resources for design,” says Currie, the environmental lawyer. “They can wait 10 or 15 years and it wouldn’t be the end of the world for them. Whereas with the Metals Company, look at their stock price. If their license isn’t approved, it’s hard to see how they survive.” Global Sea Mineral Resources has also been running extensive tests in the Pacific—and learning its own lessons in how badly things can go wrong. A frantic knocking on the metal door of his cabin jolted Kris De Bruyne awake. It was early in the morning of April 25, 2021, and De Bruyne, a Belgian engineer with Global Sea Mineral Resources, was aboard an industrial ship far out in the Pacific. De Bruyne was helping a team of researchers testing the Patania II, a bright green prototype nodule collector similar to the one deployed by the Metals Company. Now one of his team was shouting through the door: “Something really bad happened. The umbilical disconnected!”

It was, indeed, *really* bad. The umbilical is a Kevlar-jacketed cable stuffed with fiber-optic and copper wires. Nearly 3 miles long and as thick as a person’s arm, it was the only thing tethering the Patania to the ship. “Is it going down?” De Bruyne called back. “Yes!” De Bruyne scrambled into his red coveralls and ran up on deck. The crew had been hauling up the vehicle after a test drive. When it was just 50 feet from the surface, the umbilical snapped. The 35-ton vehicle went spiraling back down to the bottom of the Pacific. De Bruyne stared helplessly over the side. Luckily, the Patania

landed with its locator system intact, sending acoustic pings up to the ship. It took a couple of days, but crew members eventually maneuvered down a small submersible robot equipped with three-fingered Doctor Octopus tentacles to reattach the repaired umbilical. “It was relatively easy. Well, I say it was very easy, but it was also like ‘AAAHHH!’ and ‘NOOOO!’” De Bruyne recounted when I met him at Deme’s headquarters near Antwerp, Belgium. “It was an emotional roller coaster.” When they hauled the Patania up, they found it almost completely undamaged. To De Bruyne, the snapped cable was just one of the “teething problems” that typically come with launching such a complex piece of equipment. Earlier in the expedition, he’d also had to contend with Greenpeace activists who had painted “RISK!” on his ship in huge yellow letters.

De Bruyne is fit, clean-shaven, and small in stature, with a fanboy’s enthusiasm for his job. He’s acutely conscious of the criticism directed at his industry, and he seems to take it personally. De Bruyne’s parents were traveling veterinarians, and they raised him and his brother in Rwanda and Vietnam. “I grew up in nature. I’m not the nature destroyer they want me to be,” he says. “The nongovernmental organizations and the environmentalists, they forget that we also have our stories and that we want to do something good for the world as well.”

The Patania mission, he points out, was accompanied by a separate boatload of independent marine scientists who monitored the machine’s impact on the ocean (as was the Metals Company’s foray). Still, the more we talked, the more qualms he confesses. “Once in a while, I’ll ask myself, am I still doing the right thing?” he says. “I still think we’re doing the right thing, because we’re still doing research.” He says he’s not even convinced deep-sea mining should go ahead. “We need to know what the impact would be of deep-sea mining, and I’m contributing to getting answers to that question. That’s how I feel about it.” Global Sea Mineral Resources has already sunk at least \$100 million into developing its subsea mining system, and it recently announced a partnership with Transocean, a major offshore oil-drilling outfit. The sea-mining company is now designing the much larger Patania III—the first of what the company hopes will be a fleet of full-scale mining robots that will hit the ocean floor around 2028.

The five years between now and then might be enough to develop the scientific understanding needed to craft regulations to safely mine the seafloor—or to determine whether it should be done at all. Or it might be time for alternatives, such as reducing private car ownership or recycling metals, to gain enough traction to make seabed mining superfluous. But frankly, none of these possibilities seem likely. Gerard Barron is not planning to wait. “Got the boat, got the machine, announced the partnerships on how we’re going to process the nodules,” he says confidently. Assuming the Metals Company gets the go-ahead from the Seabed Authority, he says, everything is on track to start harvesting nodules by late 2024. The company’s goal for its first year is 1.3 million tons, scaling up to 10 times that amount in the next decade.

The two-year deadline expires this summer. After Nauru put the Seabed Authority on notice, the agency hurriedly convened several meetings, but results have been scant. The pressure seems to be generating something of a backlash. At the authority’s most recent meetings last November, several member states called for a “precautionary pause” on seabed mining, echoing the moratorium petition. According to Bloomberg, France’s representative declared that his country did not consider itself obligated to approve mining until it was satisfied with the regulations, and several other countries indicated they felt similarly. The UK, India, and Japan, however, want to try to hit the 2023 deadline. Some activists are even calling for the Seabed Authority to be overhauled or replaced. “The general feeling is, there’s a lot of work to do and a lot of complex issues to be addressed. So when some country says, ‘Just gimme a contract, I’m gonna get on with it,’ it rankles enormously,” says Currie, who attended the most recent round of Seabed Authority meetings. There’s a widespread feeling that it is too soon to be giving out permission to start mining, he says, but it’s not

clear how the organization might stop that from happening. “No one,” says Currie, “is sure how this will play out.”

Update 4-12-2023: This story was updated to clarify Barron's compensation. This story was supported by the Pulitzer Center on Crisis Reporting. This article appears in the April 2023 issue..

Source: <https://www.wired.com/story/deep-sea-mining-electric-vehicle-battery/>

Bougainville - mine

Radio New Zealand, 10 March 2023

The secretary of Bougainville's Department of Minerals and Energy Resources says the Papua New Guinea autonomous region will be moving closer to a re-opening of the Panguna mine this year. Peter Kolotein has launched the department's strategic objectives for the next five years. He said the department has redirected its focus towards delivering on the government's growth priorities. Kolotein said with the sweeping support for independence in the 2019 referendum Bougainville needs a high impact development project as an economic catalyst.

KPHL to claim State's percentage in Papua LNG project

March 9, 2023, The National Business

KUMUL Petroleum Holdings Ltd (KPHL) is ready to take up the State's 22.5 per cent share in the Papua LNG project after the final investment decision (FID), says managing director Wapu Sonk. Sonk welcomed the announcement of the full front-end engineering and design (Feed) phase of the project which was launched on Monday. “This project will build on the foundation laid by the PNG LNG project, reinforcing that PNG is a safe and profitable country for international petroleum companies to invest in,” he said. “It also paves the way for an additional LNG train that will be owned by KPHL, unlocking previously inaccessible gas reserves and creating significant value for Papua New Guinea. “Papua LNG is the country's next large scale LNG development, which would bring many short and long term benefits to the nation. “Kumul Petroleum is ready to take up the State's 22.5 per cent share in the project after FID.

“An important component of the brownfield expansion of Caution Bay LNG site is the provision for extra LNG trains, allowing future expansion of processing facilities.” Sonk said the plant design for initial four electric-powered 1 million tonnes per annum trains for Papua LNG also allowed for later installation of additional trains. He said as further commercial gas reserves were identified, they could feed in and be processed at the Caution Bay site. “Kumul Petroleum has approximately 2.5 trillion cubic feet of gas resources in the Kimu, Barikewa, Uramu and Pandora fields,” he said. “We intend to aggregate this gas to feed into our own KPHL 1mtpa train at Caution Bay. “This is subject to engineering, commercial discussions amongst joint venture parties, Government approvals and market conditions, that is international LNG prices, between now and 2030. “KPHL will work with operators of PNG and Papua LNG projects to study tie-in of a new pipeline to PNG LNG and Papua LNG pipelines, and the coordinated operation and maintenance of additional Kumul LNG train at Caution Bay.”

Tarutia: Papua LNG project will boost forex

By PETER ESILA, March 9, 2023, The National Business

THE participation of businesses and the availability of foreign exchange (forex) that the Papua LNG project is expected to bring is welcomed, says PNG Commerce and Industry president Ian

Tarutia. Following the launching of the Papua LNG front-end engineering design (Feed) phase in Port Moresby on Monday, he said it was a big step in progressing the country's second LNG project. "It is welcome news," Tarutia said. "The obvious benefits are stimulating our economy during the Feed phase. But more pleasing for PNG business is the negotiated outcome for more national content.



Petroleum and Energy Minister Kerenga Kua (left) with TotalEnergies senior vice-president Asia Pacific Julien Pouget during the launching of the Papua LNG front-end engineering design and new logo in Port Moresby on Monday.



Nasfund incoming chief executive officer Rajeev Sharma (left) with his predecessor and PNG Chamber of Commerce and Industry president, Ian Tarutia, during the launching of the Papua LNG front-end engineering design and new logo in Port Moresby on Monday.

"We welcome the opportunity for PNG-owned businesses to be given priority." Petroleum and Energy Minister Kerenga Kua said whatever could be done by Papua New Guineans and their

companies must be done by them. Kua said the forex issue could be greatly assisted by the Feed expenditures onshore. “We ask TotalEnergies to bring onshore at the earliest the foreshadowed K500 million equivalent in foreign currency in 2023,” he said. “This will greatly help mitigate our forex deficit issue at the earliest.” Tarutia welcomed the infusion of forex into the economy to alleviate the rationing schedule and chronic shortage, so businesses can keep paying offshore creditors for goods and services.



TotalEnergies PNG Limited managing director Jean-Marc Noiray (left) with Kikori MP Soroi Eoe during the launching of the Papua LNG front-end engineering design and new logo in Port Moresby on Monday.
– Nationalpics by KENNEDY BANI

“Services providers offshore are no longer extending credit terms to PNG companies,” he said. “They want payment straight away, even advance payments to keep supplying goods or professional services. “It is a first step but an important one in getting Papua LNG off the ground.”

Five per cent space for Papua LNG domestic market

BY DALE LUMA, Post-Courier, 8 March 2023

Prime Minister James Marape says the government has been given the green light and has secured a 5 per cent stake in the Papua LNG project for domestic market gas. He said the government wants to use this to pursue processing of petrochemical products in country. This includes petrol, diesel and jet fuel which is the intention of the government. “I have also asked TotalEnergies to assist by looking outside at the creation of a petrochemical business to bring to fruition current efforts to secure our domestic energy market,” he said. Mr Marape termed the recent fuel issues faced in the country as an unnecessary fiasco. He said that it was not caused by forex supply.

“As far as the unnecessary fiasco, that’s not by the way caused by forex supply, we have enough forex in the Central Bank,” Mr Marape said. “This unnecessary fiasco is caused by Central Bank’s monetary policy, let me place this on record. “Those who need to know, the forex level in our country is high as ever, adjust that fiscal policy and monetary policy. “Government has no control over the Central Bank and we have asked them as we work in consultation that they must supply enough to the market. “But let me appreciate Total and ExxonMobil who have given the indication to government and our country to look at possible immediate solution to bring more fuel to supply our local market.”

Papua LNG well positioned to supply Asia-Pacific region

Post-Courier, 8 March 2023

The Papua LNG project is well positioned to supply LNG to growing markets across Asia-Pacific, says ExxonMobil PNG chairman and managing director, Peter Larden. ExxonMobil, a project partner to the Papua LNG project, has announced the fully integrated front-end engineering and design (FEED) for Papua LNG, the next step in progressing the country's second LNG project. Project targets 6 million metric tonnes per year (MTA) of LNG liquefaction capacity, which will add to ExxonMobil's increasing LNG portfolio. The final investment decision for project is planned for end of 2023 or early 2024. TotalEnergies is the operator of the Papua LNG joint venture, with the construction and subsequent operation of new electric liquefaction trains adjacent to existing PNG LNG Project liquefaction facilities to be delegated to ExxonMobil, operator of PNG LNG since it started production in 2014.

The Papua LNG project is targeting 6 MTA of LNG liquefaction capacity, further advancing Papua New Guinea's position as an LNG-exporting country. "ExxonMobil looks forward to progressing engineering and design work in collaboration with TotalEnergies, our venture partners and the government and people of PNG," Mr Larden said. "PNG's second LNG project is advancing with a design that includes electric liquefaction trains and re-injection of native CO₂ produced into the reservoirs, reducing the overall carbon intensity of the project. "FID (final investment decision) is planned later this year or in early 2024, subject to stakeholder support, regulatory permitting and market conditions. If approved production start-up is scheduled four years after FID."

Papua LNG project issues must be resolved, says governor

By SHIRLEY MAULUDU, March 8, 2023 The National

GULF Governor Chris Haiveta has warned that the province, on which the K35 billion Papua LNG project is located, will not take part in any associated development forum until "certain concerns" are addressed. "We (Gulf) will not go to any development forum until we are satisfied that the land-owners are properly identified," he said. He attended the project's launching of its front-end engineering design phase in Port Moresby on Monday. He told a packed room at the Apec Haus that those "certain concerns" must be sorted out first. He was ushered in on a wheelchair after spending months overseas for an illness. "It has taken us since 2019 when the gas agreement was signed," Haiveta said. "I want to thank the people involved, Peter O'Neill and his cabinet and former deputy prime minister Charles Abel who were instrumental (in the early stages).

"We have a project that is going to be very economical. "We have electric trains, we have a very small carbon footprint, we have a project that will not only bring benefits to this nation but to, Central and Gulf and to our people." He urged the Government to honour the main points in the gas agreement including "the domestic market obligation (DMO), national content and various strategic places to allow us to do further refining of gas downstream in Gulf and Central". He said for national content and the DMO, the provinces would have to be involved, as "that's part of project security". "I also recognise that the partners of the PNG LNG (project) will be partners of the Papua LNG project," he said. "If that is the case, look at things that we missed out on in the PNG LNG project. "We have given you four years (to sort this out). "If we resolve the issues now, we will not have issues later like we have in the PNG LNG that continue to haunt us."

New logo for Papua LNG unveiled

March 8, 2023, The National Business



EXXONMOBIL and Santos, the joint venture partners of the K35 billion Papua LNG project, are looking forward to progressing the engineering and design work with TotalEnergies. They stated this following the announcement of Papua LNG fully-integrated front-end engineering and design phase on Monday – the next step in progressing the country’s second LNG project. Details include:

- PROJECT targets six million metric tonnes per year (MTA) of LNG liquefaction capacity, to add to ExxonMobil’s increasing LNG portfolio;
- CONSTRUCTION and operation of new electric liquefaction trains adjacent to existing PNG LNG facilities delegated to ExxonMobil; and,
- FINAL investment decision (FID) for project planned for end of 2023 or early 2024.

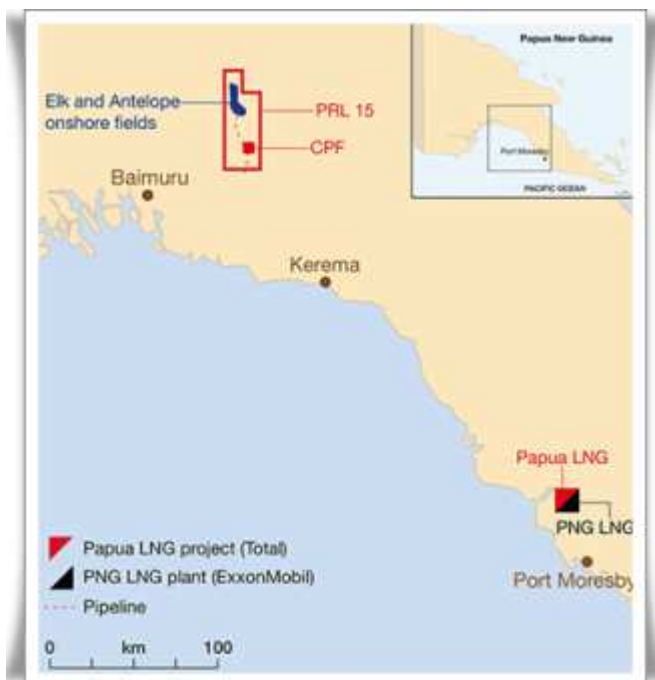
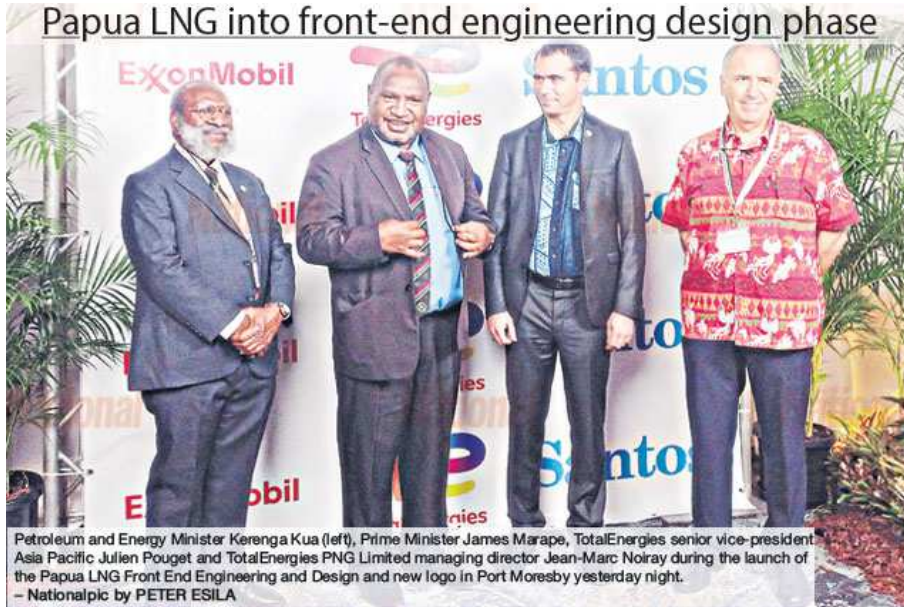
The Papua LNG partners have selected a concept using four electric LNG trains (e-trains) with a combined capacity of four million tonnes per annum. It will be developed within the existing PNG LNG project site. Papua LNG has also secured access to up to two million tonnes of existing liquefaction capacity from the PNG LNG project. Integrating the Papua LNG midstream development within the PNG LNG “maximises the value of both projects and delivers increased capital efficiency by reducing upfront capital expenditure, and maximising integration synergies”. Selecting e-trains and re-injection of reservoir CO₂ will reduce the carbon intensity of the project. ExxonMobil PNG chairman and managing director Peter Larden said TotalEnergies was the operator of the Papua LNG joint venture, with the construction and subsequent operation of new electric liquefaction trains adjacent to existing PNG LNG Project liquefaction facilities to be delegated to ExxonMobil, operator of PNG LNG since it started production in 2014.

“The Papua LNG project is well positioned to supply LNG to growing markets across the Asia-Pacific region,” Larden said. “ExxonMobil looks forward to progressing engineering and design work in collaboration with TotalEnergies, our venture partners and the government and people of Papua New Guinea.” Santos managing director and chief executive officer Kevin Gallagher said the Papua LNG entry was consistent with Santos’ strategy to backfill and sustain its core natural gas assets. “The concept selected for Papua LNG maximises value through midstream integration with PNG LNG to deliver increased capital efficiency and lower operating costs, consistent with our disciplined operating model,” Gallagher said. “Entry for Papua LNG is a significant step for the project

and we are working closely with the Government, communities and local companies to deliver new jobs and help support the economy.”

Huge step in K35bil project

By PETER ESILA, March 7, 2023, The National Main Stories



A proposed footprint stretching from Gulf to the plant site outside of Port Moresby. – TotalEnergiespic

THE \$US10 billion (about K35 billion) Papua LNG project, expected to boost the economy and bring in much-needed foreign exchange, launched its integrated Front End Engineering Design (Feed) phase in Port Moresby last night. Petroleum and Energy Minister Kerenga Kua said the K35 billion project would generate a lot of government revenue and benefit the country immensely. “It will be a major boost for the economy. It will bring foreign exchange which we have been struggling to get,” he said. “A major increase in Government revenue consisting of development and production levies, dividends and taxes, royalties to the landowners, and contact opportunities for PNG companies,” he said. “During the Feed stage this year alone, the project will be spending over

K500 million in the next nine months or so. That is a lot of money and will also result in forex entering the country.”

TotalEnergies senior vice-president Asia-Pacific Julien Pouget said the project would ensure that a lot of people could contribute to it. “I am sure that we can achieve big targets. It is one of our key priorities on training, so that local people can directly contribute to the project,” he said. Kua said that during the construction phase, the project would be spending up to K2 billion locally. “This project will be a catalyst for big economic growth also for the gas industry in PNG,” Kua said. The time frame for Feed and Final Investment Decision is up to 16 months. Kua said the Gas Agreement was signed in April, 2019 by the Peter O’Neill-led Government. “We have asked for a few additional benefits on our own account so that we could have our own footprint in the gas agreement,” Kua said. Kua said they asked for five “things”, but TotalEnergies agreed to only four. “I can see TotalEnergies already making serious efforts to implement some,” Kua said. They are:

PARTICIPATION in shipping;

- MAXIMISED national content;
- INCREASED provisioning of foreign exchange which could be negotiated with the Bank of PNG;
- DOWN-the-track ownership of pipeline infrastructure by the State and its agencies.

“Those were additional gains in favour of the State and its stakeholders,” Kua said. “This Feed will cover upstream, pipeline to downstream processing to shipping.” He said it was the first project to re-inject carbon dioxide back into the wells, after the gas had been extracted. “The other special feature is the use of e-trains (which) will use electric setting instead of gas,” he said.

Papua LNG project on schedule to start: TotalEnergies

March 7, 2023, The National Main Stories

EXECUTIVES of TotalEnergies have told Prime Minister James Marape that the Papua LNG project was on schedule to start the Front End Engineering Design (Feed) phase. It plans to move into early preparatory works and the final investment decision late this year or early next year. The Total team was led by Julian Pouget, the senior vice-president of the Asia Pacific region. “We were informed that by next year, construction of the multibillion Kina worth of infrastructures would start and run until the first gas (is produced) in 2027,” Marape said. “And with our P’nyang gas agreement, we will extend construction money into the P’nyang development that will see our country having a much longer construction period than the PNG LNG years.” It is expected that the Papua LNG construction will start in 2024 and completed in 2027.

The P’nyang LNG construction will continue into 2031 or 2032. Marape urged the company to work with the Government in finalising the local content plan, local labour recruitment and training. Marape said the Government’s technology colleges would train workers to participate in the LNG construction phase and operations. Marape also directed that TotalEnergies partner with Kumul Petroleum Holdings Ltd and Mineral Resources Development Company to produce local fuels using domestic market gas provisions. He also asked for support for Kumul Petroleum to build a stand-alone train for other gas from stranded fields. Marape was pleased that TotalEnergies appreciated the Government’s concerns and vowed support on government policies on local content, downstream processing, local labour hire, development forum with land owners, provinces and districts concerned.

Sia supports gold prospect

BY NELSON JOE, Post-Courier, 6 March 2023

Governor Simon Sia is looking at opening up resource projects for development in Eastern Highlands Province. He started this with a consultation meeting with the landowners of Crater Gold prospect in Lufa District two weeks ago. “Under my administration, we will support local landowners and negotiate with the developers who have the financial capacity to mine the gold at Mt Crater in Unavi LLG (local level government) of Lufa District,” Mr Sia said. “I will also take this matter up with the Mining Minister and all relevant authorities to ensure Crater Gold Mine is given full prominence both at the provincial and national level. “Crater Gold Mine has a huge potential to contribute to the national and provincial coffers and will also improve the lives of the local communities, hence, we cannot sit back and watch landowners do things on your own. “I will ensure you are given full backing under my leadership.” The landowners spokesperson Max Pupuna thanked Mr Sia for hosting the meeting and giving his support towards the development of this gold project.

“Crater Gold Mine has a huge potential to contribute to the country’s economy. “Yet successive governments, both national and provincial, do not back the landowners to discuss and bring in a reputable company that has the financial capacity to develop the mine. “And that is what has been derailed over the years,” Mr Pupuna said. “We cannot do it on our own and in isolation. “As we will not progress the development of the mine.” He said a roundtable discussion such as this is the way forward to finding a win-win solution for all parties concerned and he thanked the governor for the meeting. The project is located approximately 50km southwest of Goroka in Lufa District. It comprises three tenement exploration licences, straddling the border between the Chimbu and Eastern Highland provinces. This region is in the centre of the New Guinea Orogen, an extensive geological zone that makes up the mountainous spine of Papua New Guinea. The western portion of this zone encompasses the worldclass mining operations of Porgera, Ok Tedi, Wafi-Golpu and Grasberg.

No cash, impact projects: Pala

By PETER ESILA, March 6, 2023, The National Business

MINING Minister Sir Ano Pala says infrastructure development grants (IDG) for Wafi-Golpu project landowners will not be paid by cash but in impact projects submitted by the Morobe government. Sir Ano said this after receiving a petition from Wafi-Golpu landowners demanding the Government to release K100 million in IDG funds for 2023. “We are aware of a National Executive Council (NEC) decision made by the previous government, proposing Wafi-Golpu IDG at K1.2 billion,” he said. “As per the State’s undertaking, the IDG will be paid over 12 years commencing from commercial production of the project. “The IDG will not be paid in cash but in the form of impact projects within Morobe as submitted by the provincial government. “The same NEC decision approved total business development grants (BDG) of K50 million as seed capital for the special mining lease 10, pipeline and deep-sea tailing placement (DSTP) umbrella landowner companies.”

Mineral Resources Authority and Department of Commerce and Industry have recommenced this process on the ground. “We anticipate completing all BDG requirements by first quarter of 2023 and secure initial BDG funding in 2024 Budget,” Sir Ano said. He urged the Yanta, Hengambu and Babuaf landowner associations to consult the Morobe government and identify priority impact projects. “This submission can be made by the provincial government to National Planning and Monitoring and Treasury Departments for funding consideration under the BDG. My ministry will continue to facilitate necessary support to ensure project landowners get appropriate benefits derived from extraction of mineral resources.” Sir Ano said the Wafi-Golpu project was a high priority mineral resource project for development by the national government. “The project is currently in its

permitting and negotiation phase, and the State is committed to completing this process soon,” he said.

Landowners call for govt to release IDG grants of K100 million

By PETER ESILA, March 3, 2023, The National Business



WAFI-GOLPU project landowners in Morobe want the Government to release the Infrastructure Development Grant (IDG) of K100 million allocated in this year’s budget, an official says. Hengambu Landowners Association president John Nema said K66 million in 2021 and K50 million were allocated but not received. “It is unfortunate that the project landowners have not been provided any funding from, nor have they participated in any business opportunities relating to, and emanating from infrastructure projects funded from the IDG allocation for these years, as appropriated by Parliament,” he said. Nema said since the introduction of the IDG allocation for the Wafi-Golpu project in 2020, landowners submitted to Government details of potential projects.

“Experience has clearly shown that the funds allocated and intended for IDG have been grossly misused, and not applied to the project impact areas,” he said. “Continuous delays, and unfulfilled assurances have clearly frustrated our people, and may pose challenges to the progress of the project on the ground as stakeholders prepare for the convening of the development forum by the Ministry for Mining. “We submit the position of the proposed Special Mining Lease 10 area landowners regarding the IDG, and in particular identified projects, the national plans and strategies that underpin these, the scope of each, the costs and time frames for their implementation.” Bulolo MP Sam Basil Jr yesterday said he received the petition and would it to the Government.

Woodlark Island to be returned

BY FRANK RAI, Post-Courier, 2 March 2023

Deputy Prime Minister and Minister for Lands John Rosso has issued a forfeiture notice to reclaim the Woodlark Island land currently owned by a foreign company. The land is situated in the Murua local level government area of Samarai Murua district in Milne Bay. According to Samarai-Murua MP and Minister for Tourism, Arts and Culture Isi Henry Leonard, the forfeiture notice has been issued administratively to reclaim the land and return it to the indigenous inhabitants. He said the island portions of land were demarcated during the colonial era in the late 1800s and early 1900s

and divided as Portions 138,139 and 140, covering 60,440 hectares of the island which is about 85 percent of land mass.

Mr Leonard said a Supreme Court decision handed the land to the foreign company in August 2019, however the forfeiture notice issued by the Minister for Lands was to an administrative directive to reclaim the land. “The local population on Woodlark Island were immigrants on their own traditional customary land after the Supreme Court handed over the land to a foreign company,” Mr Leonard said. “I will work closely with officers from the Department of Lands to ensure that the forfeiture notice is actioned and the land is reclaimed to the rightful traditional landowners,” he said.

He said the island has the ‘Black Eboni’ hard wood which cannot be found in other parts of the country, and also boasts unique fauna and flora. Mr Leonard also said with the rich natural resources including prospect of gold and ore minerals, landownership was important for the local people’s benefit and also for the future generation. He said the landownership issue should be settled and landowners identified before the mine commence operations. He said he would also invite the Minister for Lands and Minister for Mining later this year to visit Woodlark Island to discuss this and other issues affecting the island.

Porgera tax issue under review

March 2, 2023 The National Business

A GOVERNMENT-selected panel is still reviewing the tax dispute between the Internal Revenue Commission and Barrick Niugini Ltd, says Prime Minister James Marape. Marape was responding to questions on whether the three-man panel had completed its review following its appointment by the National Executive Council on Feb 5. He said NEC noted the (slow) progress of activities required to reopen the Porgera gold mine and was concerned that the tax matter was prolonging it. Marape said while the State continued to observe the independence of the Internal Revenue Commission, it availed itself of the opportunity to be advised independently of the issues surrounding the taxation dispute.

The NEC appointed David Sode, a former IRC commissioner-general, David Castiglione, a specialist in resource taxation, and Ron Webb QC to work with a legal firm to review the legal analysis of the IRC’s position. “The panel has two weeks from the date of receiving the NEC decision to complete and file its report back to the National Executive Council,” Marape said. However, he said this week that the formation would be made known once the review was completed. “The independent panel is still doing its review,” Marape said. “Once they give their findings to the Government, the Government will be able to make an informed decision. “A decision can be expected by this month (March).”

Suspects rounded up for ransacking Ok Tedi vessel

Post-Courier, 2 March 2023

Police have arrested 14 men who have stopped and ransacked an Ok Tedi Mining Limited vessel along the Fly River because the vessel had run over their fishing nets. The police team comprised members of the Port Moresby based criminal investigation division, the national security unit from McGregor and the Daru transnational crime unit. Daru police station commander Inspector Saiwa Ricker said the villagers were responsible for an attack on Ok Tedi vessel Fly Prosperity, which was transporting 4153 tonnes of concentrated copper ore from Kiunga to Port Moresby. Police say they

pounded near the Tatami fishing camp situated at the point of Purutu island on January 15. Police say the vessel, on its way down the river, ran through the fishing nets of local fishermen.

Upon realising that, the angry locals commandeered a banana boat and chased after the vessel with crude weapons such iron rods and axes. Insp Ricker said the suspects flagged the vessel's captain and crew and demanded that they stop the vessel. He said the locals then boarded, threatened the crew and ransacked the vessel's cargo. He said the captain's vessel managed to take a video of the men ransacking the vessel. He said they walked away with chairs, welding machines, mattresses, mobile phones, money belonging to the crew, jackets, safety boots, water bottles, frozen goods, ice cream cartons and laptops belonging to the vessel. A total of K20,084 worth of private properties belonging to the crew were stolen. He said the pirates, from Wapi village in the Wabada group of islands in South Fly, are detained at the Daru police station for questioning.

RANKED: World's top ten biggest gold projects – 2023

MINING.com Editor, February 27, 2023

Gold mining companies have been grabbing headlines this year over a flurry of merger and acquisition (M&A) activities. The biggest deals in the gold sector include the world's largest gold producer, Newmont, seeking to build a global gold superpower by approaching Australia's Newcrest with a [\\$17 billion takeover offer](#). Agnico Eagle Mines and Pan American Silver outbid Goldfields for Yamana Gold in a [\\$4.8 billion transaction](#). More gold mergers and acquisitions [may be likely this year](#), and the M&A drive offers a path forward from a decade-long gold rut, [analysts say](#). To provide a snapshot of the potential of the world's gold supply, the latest [Mining Intelligence](#) top ten list ranks the world's largest gold projects by resource size, measured in millions of troy ounces (mozt).

Project	Country	Majority Owner (s)	Development Status	Geology	Reserves/Resources (million oz) ▾
1. Kerr-Sulphurets-Mitchell (KSM)	Canada	Seabridge Gold	Prefeasibility	Porphyry, Skarn	154.1
2. Pebble	United States	Northern Dynasty Minerals	Preliminary Economic Assessment	Porphyry, Supergene Copper	106.5
3. Sukhoi Log	Russia	Polyus	Feasibility	Orogenic Gold	66.4
4. Norte Abierto	Chile	Barrick Gold/Newmont	Preliminary Economic Assessment	Epithermal, Porphyry, Epithermal - High Sulfidation	54.7
5. Donlin	United States	Barrick Gold/Novagold Resources	Permitting	Orogenic Gold	45.0
6. Reko Diq	Pakistan	Barrick Gold/Government of Pakistan	Feasibility	Porphyry, Supergene Copper	37.4
7. Snowfield	Canada	Seabridge Gold	Prefeasibility	Porphyry	34.6
8. Hu'u/Onto	Indonesia	Vale	Advanced Exploration	Porphyry	32.6
9. Tujuh Bukit Porphyry	Indonesia	PT Merdeka Copper Gold Tbk	Prefeasibility	Porphyry	28.6
10. Treaty Creek	Canada	Tudor Gold	Preliminary Economic Assessment	Porphyry, Volcanic Hosted Massive Sulfide	24.5

#1 KSM**Development status: Prefeasibility // Geology: Porphyry, Skarn**

Seabridge Gold's Kerr-Sulphurets Mitchell (KSM) project in British Columbia's famed Golden Triangle is in first place with 154.05 (mozt). The \$5.3 billion project hosts four mineral deposits and the [preliminary economic assessment](#) released in August 2022 outlines an underground block cave mining operation supplemented with a small open pit, planned to operate for 39 years. Last month, BC's Tahltan Nation and Nisga'a Nation [forged a partnership to participate](#) in the KSM project.

#2 Pebble**Development status: Preliminary Economic Assessment // Geology: Porphyry, Supergene Copper**

After spending two years in the top spot, Northern Dynasty Minerals' Pebble project in the Bristol Bay region of Alaska moves to second place. While the resource has 106.54 million troy ounces mozt of gold, the project has been plagued with controversy and environmental opposition over the years. It is unclear if the mine will eventually be developed, as the [Biden administration banned](#) the dumping of mining waste near Bristol Bay, issuing a decree that thwarts longstanding plans to extract gold, copper and molybdenum because of potential harm to the region's thriving sockeye salmon industry.

#3 Sukhoi Log**Development status: Feasibility // Geology: Orogenic Gold**

The Sukhoi Log deposit is in third place with 66.37 mozt, and is said to be the [world's largest by reserves](#). Russian miner Polyus [bought the remaining stake](#) in the giant deposit in Siberia from its project partner Rostec in a \$128 million deal in 2020, and shortly after raised [its investment forecast to \\$3.3 billion](#) for the project that will double its production from 2027.

#4 Norte Abierto**Development status: Preliminary Economic Assessment // Geology: Epithermal, Porphyry, Epithermal – High Sulfidation**

The Norte Abierto project in Chile, a joint venture between the world's two top gold miners, Newmont and Barrick is in fourth place with 54.70 mozt. A Chilean environmental court last year [ordered a new evaluation](#) of the project due to concern that heavy traffic and water usage could disrupt life for the nearby indigenous community.

#5 Donlin**Development status: Permitting // Geology: Orogenic Gold**

The Donlin project in Alaska is in fifth place with 45.04 mozt. A joint venture between Barrick and Novagold Resources, the owners [are working on an updated feasibility study](#) while drilling is ongoing.

#6 Reko Diq**Development status: Feasibility // Geology: Porphyry, supergene copper**

The massive Reko Diq deposit in Pakistan takes sixth place after Barrick Gold [resolved a long-running dispute](#) with its Pakistani partners last year. As 50% owner, Barrick is planning to invest \$10 billion into the project, which is expected to have a life of more than 40 years. A feasibility study update is expected by the end of 2024, and the aim is to achieve [first production by 2028](#).

#7 Snowfield**Development status: Prefeasibility // Geology: Porphyry**

In seventh place is Seabridge Gold's Snowfield project in Northwestern British Columbia with 34.6 mozt. Seabridge acquired the Snowfield property in 2020 from Pretium Resources. Snowfield is

adjacent to KSM's Mitchell deposit and work has started on an updated PFS to incorporate Snowfield into KSM's mine plan.

#8 Hu'u Onto

Development status: Advanced exploration // Geology: Porphyry

The Hu'u Onto project in Indonesia takes eighth place with 32.6 mozt of gold. The project is held by a joint venture between Vale (80%) and Indonesian mining company ANTAM (20%), which has been exploring the Hu'u property since 2010. Following [the discovery of the world-class Onto copper-gold deposit](#) in 2020, the project's resource was significantly boosted.

#9 Tujuh Bukit

Development status: Prefeasibility. Geology: Porphyry

Also in Indonesia, in ninth place is PT Merdeka's Tujuh Bukit project with 28.6 mozt. The project uses conventional open-pit mining with heap leach processing to produce up to 90,000 oz gold a year.

#10 Treaty Creek

Development status: Preliminary Economic Assessment. Geology: Porphyry, Volcanic Hosted Massive Sulphide

The Treaty Creek project in British Columbia rounds out the list with 24.5 mozt. [Tudor Gold has a 60% interest in Treaty Creek](#); American Creek Resources and Teuton Resources each hold a 20% interest. The property is within BC's Golden Triangle and borders Seabridge Gold's KSM project to the southwest and Pretium Resources' Brucejack property to the southeast.

More data is at [Mining Intelligence](#).

RANKED: World's top 10 copper mining projects – 2022

MINING.com Editor, February 16, 2022



The area where Pebble mine would be built, 320 km southwest of Anchorage, within the Bristol Bay watershed. (Image courtesy of [Northern Dynasty Minerals](#))

Copper, often called the bellwether metal as a barometer of global economic health, is a metal vital to the green energy transition. Demand has been growing for the red metal, and energy and metals researcher Wood Mackenzie expects end-use copper demand from passenger EVs to [jump to around 2.9 million tonnes](#) over the next decade from about 600,000 tonnes in 2021. For a snapshot of the copper supply chain of tomorrow, MINING.COM and sister

company [Miningintelligence](#) compiled a list of the top 10 largest undeveloped copper projects and ranked them according to copper resources in the measured and indicated and inferred categories. Based on our criteria, we excluded Udokan Copper's [Udokan](#) in Russia, Zijing's [Timok](#) in Serbia and Anglo American's [Quellaveco](#) in Peru, which have moved into the construction and commissioning phases.

Project	Country	Majority Owner	Development Status	Geology	Contained Copper (mt) ▾
1. Pebble	United States	Northern Dynasty Minerals	Preliminary Economic Assessment	Porphyry, Supergene Copper	37.18
2. Resolution	United States	Rio Tinto	Feasibility	Porphyry	27.27
3. La Granja	Peru	Rio Tinto	Advanced Exploration	Porphyry	22.06
4. Kerr-Sulphurets-Mitchell (KSM)	Canada	Seabridge Gold	Prefeasibility	Porphyry, Skarn	21.25
5. Nueva Union	Chile	Teck Resources/Newmont	Prefeasibility	Porphyry	16.69
6. Tampakan	Philippines	Sagittarius	Feasibility	Porphyry	15.25
7. El Pachon	Argentina	Glencore	Advanced Exploration	Porphyry	15.04
8. Los Azules	Argentina	McEwen Mining	Preliminary Economic Assessment	Porphyry, Supergene Copper	13.42
9. Twin Metals Minnesota	United States	Antofagasta	Prefeasibility	Magmatic Sulfide	12.96
10. Frieda River	Papua New Guinea	Guangdong Rising	Feasibility	Epithermal, Porphyry	12.45

Note: Pebble and KSM are also ranked top 10 for gold

Source: Miningintelligence

mining
intelligence
data

#1 Pebble

Development status: Preliminary Economic Assessment. Geology: Porphyry, Supergene Copper

Northern Dynasty Minerals' Pebble project in the Bristol Bay region of Alaska leads the list by a distance, containing 37.18 million tonnes (mt) of copper. Pebble has been plagued with [controversy, delays and environmental opposition](#) over the years, and the project's key water permit was [formally rejected](#) by the US Army Corps of Engineers last year. This year, the Biden administration said it will relaunch a process that could [permanently protect Bristol Bay](#) from development. The decisions are currently being [challenged by Northern Dynasty Minerals](#), and in October 2021 the company released a [preliminary economic assessment](#). If permitted, Pebble would be North America's largest mine.

#2 Resolution

Development status: Feasibility. Geology: Porphyry

Rio Tinto and BHP's Resolution copper project in Arizona comes in second with a 27.7 mt copper resource. The world's top two miners have spent [\\$2 billion over 26 years trying to launch](#) Resolution into production, but have faced continued opposition from Native American groups and environmentalists. A 2014 decision by former President Barack Obama and Congress [set in motion a complex process](#) to give Rio federally owned Arizona land that contains more than 40 billion pounds of copper and would be one of the world's largest underground mines.

#3 La Granja

Development status: Advanced Exploration. Geology: Porphyry

Rio Tinto's La Granja property in Peru is in third place with 22.06 mt of copper. Rio Tinto acquired La Granja over 12 years ago, but [renewed the concession in 2019](#) and paid \$5m to continue exploring. The same year, it was rumored that Rio may [team up with First Quantum](#) to develop the mine.

#4 KSM

Development status: Prefeasibility. Geology: Porphyry, Skarn

Seabridge Gold's Kerr-Sulphurets Mitchell (KSM) project in British Columbia is in fourth place with 21.25 mt of copper. The \$5.3 billion project hosts four mineral deposits that will be operated as a combined open-pit and underground mine. Late last year, Seabridge announced its plans to re-shape KSM by [integrating the Snowfield porphyry deposit](#), acquired from Pretium Resources in December 2020.

#5 Nueva Unión

Development status: Prefeasibility. Geology: Porphyry

Teck and Newmont's Nueva Unión 50/50 joint venture in Chile takes fifth place with a 16.69 mt copper resource. The project is located in the Atacama region, and annual copper production is estimated at 224,000 tonnes during first 5 years of production.

#6 Tampakan

Development status: Feasibility. Geology: Porphyry

The Tampakan deposit on the Philippine island of Mindanao is in sixth place with 15.25 mt of copper. Sagittarius Mines is seeking local approval for the proposed mine, which is estimated to yield an average of 375,000 tonnes of copper a year over a 17-year mine life.

#7 El Pachon

Development status: Advanced Exploration. Geology: Porphyry

Glencore's El Pachón copper and silver project in San Juan Province Argentina takes the seventh spot with a 15.04 mt resource. Glencore acquired the project from Xstrata Copper – El Pachón is a major long-life development project with the potential to initially produce 400,000 tonnes of copper per year.

#8 Los Azules

Development status: Preliminary Economic Assessment. Geology: Porphyry, Supergene Copper

McEwen Mining [formed a new company](#), McEwen Copper, to advance the 13.42 mt Los Azules project in Argentina. The first thing [the company said it intends to do](#) is construct a new, low-altitude northern access road to provide year-round access to the site. The current exploration road is only passable about five months a year.

#9 Twin Metals

Development status: Prefeasibility. Geology: Magmatic Sulphide

Angofagasta's [beleaguered](#) Twin Metals project in Minnesota rounds out the top ten with 12.96 mt of copper. The company has asked US officials to reconsider a proposed 20-year ban on mining in Minnesota's Boundary Waters region, [a plan announced](#) last fall that would block Twin Metals altogether.

#10 Frieda River

Development status: Feasibility. Geology: Epithermal, Porphyry

Guangdong Rising's Freida River project in Papua New Guinea rounds out the list with a 12.45 mt resource. Freida River's estimated mine life is 20 years.

Download the data at [Miningintelligence](#).