COUNTRY BRIEFING PAPERS

to support the call for

INDEPENDENT WATER IMPACT ASSESSMENTS AND REMEDIATION FOR RIO TINTO MINES

River Drina in Serbia, which flows all the way to Bosnia and would be impacted by Rio Tinto's proposed Jadar mine. Water is Life

Summary case studies from seven countries
first compiled in October 2023

SECOND UPDATE: AUGUST 2024

Introduction

Over many years, local communities, traditional owners and civil society organisations have been pressing Rio Tinto to address issues related to water, water contamination, water management, and related mine tailings management at various of their mine sites around the world. The issues are of concern not only from a social and environmental perspective in relation to human rights to water and to live in a healthy environment, but they also present operational, reputational, legal, and financial risks to the company and to its investors. These types of risk are likely to grow exponentially as the energy transition expands growth in mining, and at rates that could undermine governance and regulatory compliance in host countries.

To date, the industry has largely self-reported its water usage. Some reporting progress has occurred. However, mining impacts on water quality are still not reported, or are self-reported in ways that are unsatisfactory and lacking in transparency. Many questions in relation to water and tailings management have been brought to the Rio Tinto Board via the company's AGM over a number of years, with many questions having to be repeated year after year. This repetition is due to insufficient company response. The latest research shows that globally there are some *23 million people already suffering from the impacts of existing toxic water contamination*[1] as a result of mine tailings and wastewater impacts, and that estimate is likely to be conservative. Therefore, the need for improved impact and risk assessment early in the mining process is increasingly evident and critical. In particular, impact assessments must identify and ensure risks and negative impacts are addressed in advance of mining activity, tailings storage facility (TSF), and dam build, rather than resulting in the need for costly mitigation and rectification after the fact, as is currently demonstrated in the legacy issues at Bougainville.

Resolutions

Towards improving transparency and standards around water governance globally for Rio Tinto, and demonstrating its commitment to respecting human rights, livelihoods and health of communities impacted by its operations[2], it is proposed that the company:

1) undertakes *independent water impact assessments at all of its mine sites* where communities have expressed concerns about water impacts or potential water impacts. The scope, framing, and execution of these assessments is expected to include stakeholders and experts in a robust, credible and equitable process. Given the demand from investors and CSOs, Rio Tinto must publicly commit to undertaking these assessments at its 2025 AGM, and urgently timetable the process for mines already experiencing water issues e.g., OT Mongolia, QMM Madagascar, Robe River Pilbara. Other restart and proposed mine sites where risks have been identified, e.g., in Guinea, Arizona, and Serbia must be timetabled for risk assessments as soon as possible.
2) commits to delivering positive benefits to affected communities by remediating any adverse human rights and environmental impacts that are identified by these assessments and linked to its operations, as the company is currently being called to do in relation to its legacy in Bougainville[3], where an independent impact assessment is due to conclude in 2024. This disastrous legacy demonstrates the extent of costs to communities and investors if such impact assessments are not undertaken and acted upon.

Case Studies

As the table below demonstrates, multiple mines have already been flagged to the company for their water and tailings issues with accompanying social, conflict and transparency issues. A summary of each country's case study follows in Appendices 1-7, in order: Oyo Tolgoi in Mongolia, QMM in Madagascar, Resolution Copper in Arizona, Jadar in Serbia, Simandou in Guinea, Panguna in Bougainville, Robe River in Pilbara. ***Contact details*** for accessing more information for each case study are available in *in Appendix 8*.

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[1] https://www.bbc.co.uk/news/science-environment-66880697?fbclid=IwAR26axJiWYOdFcV43zV088SLjYjOKoYAm_aiGLoAxRLJGdhAjBffy9b4Xgw

[2] Rio Tinto, 'Human Right Policy' approved by its Board (Oct 2022), effective from January 2023: https://www.riotinto.com/-/media/Content/Documents/Sustainability/Corporate-policies/RT-Human-rights-policy.pdf

[3] Rio Tinto, 'Human Right Policy' approved by its Board (Oct 2022), effective from January 2023: https://www.riotinto.com/-/media/Content/Documents/Sustainability/Corporate-policies/RT-Human-rights-policy.pdf

Thematic Issue/concern	Rio Tinto Mine /Country location affected	Advocacy group working on the human rights and ESG issues
Water pollution/water quality	QMM Madagascar /Oyu Tolgoi Mongolia /Resolution Copper Arizona (projected) Jadar Serbia (projected)/Panguna Bougainville/Simandou Guinea/Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; Human Rights Law Centre; SIMANDOU AWARE
Water quantity	Oyu Tolgoi Mongolia /Jadar Serbia (projected)/Resolution Copper Arizona (projected)/ Panguna Bougainville/Simandou Guinea (projected)	OT WATCH; Earth Thrive; Human Rights Law Centre; SIMANDOU AWARE; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC
Mine tailings /dam safety	QMM Madagascar/Oyu Tolgoi Mongolia /Jadar project Serbia (projected)/Resolution Copper Arizona (projected)/Panguna Bougainville/Simandou Guinea (projected)	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; Human Rights Law Centre; SIMANDOU AWARE
Failure to provide technical answers	QMM Madagascar /Resolution Copper Arizona / Oyu Tolgoi Mongolia/Jadar project Serbia/ Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC
Inadequate response to inquiries/complaints	QMM Madagascar /Oyu Tolgoi Mongolia/Jadar Serbia/Resolution Copper Arizona/Simandou Guinea/ Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; SIMANDOU AWARE; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC
Failure to share information	QMM Madagascar/Resolution Copper Arizona/ Oyu Tolgoi Mongolia/Jadar project Serbia/Simandou Guinea/ Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; SIMANDOU AWARE; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC
Community relations issues	QMM Madagascar/Oyu Tolgoi Mongolia /Jadar Serbia, Resolution Copper Arizona/ Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC
Conflict /protests etc	QMM Madagascar/Jadar project Serbia/Oyo Tolgoi Mongolia/ Panguna Bougainville	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; Human Rights Law Centre
Land pollution	QMM Madagascar/Oyu Tolgoi Mongolia/ Jadar project Serbia (projected)/Panguna Bougainville/Simandou Guinea	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Earth Thrive; Human Rights Law Centre; SIMANDOU AWARE
Legacy issues	QMM Madagascar (projected) / Oyu Tolgoi Mongolia/ Panguna Bougainville/ Robe River Pilbara	PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR; The Andrew Lees Trust; OT WATCH; Human Rights Law Centre; ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC

Appendix 1

OYU TOLGOI COPPER MINE MONGOLIA

Oyu Tolgoi (OT) open pit and underground copper and gold mining project is located in the Southern Gobi region of Mongolia, at one of the largest high- grade copper deposits in the world and is the largest mining investment contract in Mongolia. For more than a decade, local herders have raised concerns regarding seepage from the OT mine tailings storage facility, since the first mine cell was built without appropriate lining. Rio Tinto/Oyu Tolgoi claims the red clay naturally occurring is the best lining to prevent any seepage of toxic tailings into soil and groundwater. The failure to conduct transparent and independently evaluated planning for future waste sites[4] and the consequences of peak events leave the mine operations, the mine's neighbours, Rio Tinto's shareholders and insurers very vulnerable to the impact of floods and toxic waste. OT continues to downplay the extent of the risks in its November 2023 report[5] and has already started using the new tailings cell (TC2), built using the same design and technology as tailing cell one which has been leaking since 2015.

Impacts on People and the Environment: Water and tailings management

The floor of unlined Tailings Cell2 at OT likely to result in mine tailing leakage and water contamination. Image: July 2023

Oyu Tolgoi's tailing storage facilities impose risks of contamination and block herders' access to clean water in an area that is already water-stressed[6]. Oyu Tolgoi (OT) is responsible for improper handling of seepage from the tailings dam, which OT admits has escaped the mining license area[7]. The toxicity of this and other chemicals makes seepage issues an urgent concern. Despite OT's previous assurances that there will be no leakage from the tailing cell and no harm towards the herder community, this seepage appears to have already impacted groundwater quality. The seepage strongly indicates contamination of groundwater and soil outside the mine license area, which, if left unchecked, will lead to cascading negative impacts to herders, livestock and vegetation downstream of the tailings dam. OT's process adds hazardous chemicals to the mine tailings liquids and solids. Among many other statements confirming the toxicity of chemicals added to the ore which later becomes tailings, is: "Do not dispose of the substance directly. *It is forbidden to dispose of it in canals, ditches, running water or in the open."* Water quality data from July 2022 shows that seepage east of the tailings dam contains a high level of total dissolved solids ("TDS")[8], which is considered unsafe, and it has been repeatedly brought to OT's attention that their Tailings Storage Facility (TSF) does not meet industry standards, even as those industry standards themselves remain inadequate.

Failure to include mine waste and tailings management plans in the 2012 Environmental and Social Impact Assessment (ESIA)[9] or conduct any independent ESIA for any of the mine plans since that time and the lack of explicit construction plans to manage future floods, as large and larger than 2017-2018, exposes the Undai and Dugat-Khaliv watersheds to future floods and water contamination. One potentially strong flood risk related problem with Tailings Cell (TC)TC2 and all the others without sufficient diversion work prior to final design will face a serious unaddressed flood risk of the size of what occurred in 2017-18. Without the prevention of impact from the mine tailings to major floods in the Dugat-Khaliv watershed[10] - as big or larger than the last ten years, is likely to raise significant, potentially insurmountable insurance risk issues and costs.

Operational risks: These social and environmental impacts raise potential risks for Oyu Tolgoi's operation. The concerns of herders about the leakage are further aggravated by the fact that OT's first tailing cell is nearly full and they are establishing their second cell, built using the same design without adequate lining on the floor.

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[4] https://minewatch.mn/wp-content/uploads/2023/10/Annex-2-Chernaik-and-Weiskel-Tailings.pdf, Page 3

[5] https://www.ot.mn/media/otnew/content/environment/OT_Tailing_Storage_Facility_-_TSF_seepage_update_Nov_of_2023.pdf

[6] https://minewatch.mn/wp-content/uploads/2023/10/Oyu-Tolgoi-TSF-field-trip-report-07-2023.pdf

[7] https://www.ot.mn/media/otnew/content/Independent_Environmental_and_Social_Consultant_Compliance_Monitoring_report_.pdf, P. 4-51 – "In November 2021 OT formally identified an Environmental Incident at the TSF related to seepage collection.

[8] Ibid… P. 4-52 – "TDS concentrations have steadily increased at monitoring bore OTMB 16

[9] https://minewatch.mn/wp-content/uploads/2023/10/Annex-2-Chernaik-and-Weiskel-Tailings.pdf, Page 12

[10] https://www.ot.mn/media/otnew/content/Independent_Environmental_and_Social_Consultant_Compliance_Monitoring_report_.pdf, P. 4-63 – "Recommendations

OT 's own laboratory results have declared that "ponding water is not suitable for livestock", yet has failed to admit any wrongdoings or meaningfully engage herders most affected by the leakage, and has delayed providing critical information requested by herders and their advisors[11] to better understand the issues and to be able to participate in decisions related to their safety. Yet no social and environmental – including water - impact assessment has been conducted or made available for review covering OT's Phase 2 plans into the 2050s and the 3-4 tailings piles it will create over the next decades. The current tailings pile is 10-years old and OT reports that it will reach capacity in 2023. The failure to conduct environmental assessments of waste management facilities represents a failure to implement the 2017 ESIA recommendations of the IEP/MDT Report[12]. There is a concern that OT is not working in accordance with lender safeguards, global standards, including the necessity to develop and implement a remedial plan to resolve harms resulting from the TC1's seepage on herders and the environment. There is a need to reconsider watershed impacts of OT as a major factor in determining where to place future OT tailings cells. Rio Tinto must demonstrate compliance with its guidelines to release water data, address peak rainfall and flood events. Currently, risk levels from the lack of diversion and response systems to manage future peak flows and inability to contain pollution due to tailings seepage, exceed human and livestock standards.

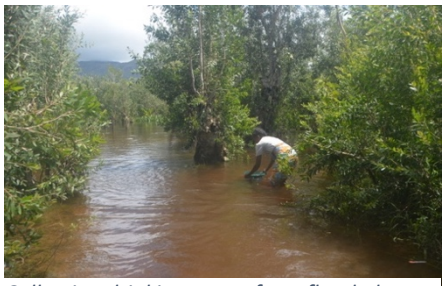
Other Issues: Transparency OT claims full compliance with GISTM including on stakeholder engagement and information disclosure. However, requested meetings with herders are often delayed by substantial amounts of time, and documents are not made available for herders and the public, which are imperative for impacted communities to understand the situation and contribute to the remediation plans through meaningful participation

PUBLIEZ CE QUE VOUS PAYEZ MADAGASCAR

The Andrew Lees Trust

Appendix 2

QIT MINERALS MADAGASCAR (QMM) ILMENITE MINE ANOSY, MADAGASCAR



Collecting drinking water from flooded area, after two QMM tailings dam failures in 2022

The Rio Tinto QMM mine in southern Madagascar is extracting ilmenite, which yields titanium dioxide, an ultra-white pigment used for paints, papers, cosmetics, and other products. The mine also extracts monazite and zircon, both of which contain the radionuclides uranium and thorium. Extraction began at the Mandena site in 2009 with a projected project lifespan of 40 years and removal of 6000 hectares of littoral forest in one of the most environmentally sensitive areas of the island where over 80% of the population are rural producers living in multidimensional poverty. QMM is a joint venture between Rio Tinto (80%) and the Malagasy Government (20%).

Impact on People and the Environment: Mine Tailings and Water Management

QMM exceeded its permitted limits by 167m and extended its operations into an environmental buffer zone (2013-14), constructing its mine basin (Tailings Storage Facility- TSF) onto the bed of Lake Besaroy and permanently exposing the local estuary in which it sits to QMM mine tailings and their contaminants. There have also been four reported tailings dam failures at QMM in 2010, 2018, Feb 2022, March 2022. The overflow incidents in 2018 and 2022 resulted in the appearance of dead fish.[13] In 2022, fish deaths led to a government-imposed fishing ban due to health concerns, and months of conflict. QMM mine basin waters are rich in radionuclides (Swanson 2019), and independent studies using QMM water data have shown uranium and lead in waterways downstream of QMM operations 50 and 40 times respectively the WHO safe drinking water guidelines (Swanson 2019; Emerman 2019, 2020 and 2021).[14] Since 2019, Rio Tinto has claimed the high uranium levels detected are all "naturally occurring." However, pre-mining water data show no elevated uranium or lead in lakes adjacent to the mine at Mandena before QMM operations began (Hatch & Assoc., 2001). see **Timeline** of QMM water issues, **here.** The Emerman analysis of QMM's 2021 Water Discharge Monitoring Data demonstrated that QMM's "natural" water management system was not working. Heavy metal contaminants discharged from its mine basin water were concentrating in "settling ponds" before being released into the wider environment e.g., uranium and lead, also cadmium and aluminium. The elevated aluminium and cadmium were above Madagascar's permitted limits.

[11] https://minewatch.mn/wp-content/uploads/2023/10/List-of-requested-documents-on-TSF.pdf
[12] https://www.cao-ombudsman.org/sites/default/files/downloads/MDTIEP_FINALREPORT_ENG_January292017_000.pdf, P 14, 5.3.1, 5.4
[13] See https://news.mongabay.com/2023/05/fish-deaths-near-rio-tinto-mine-in-madagascar-dredge-up-community-grievances/
[14] All studies available at: http://www.andrewleestrust.org/studies_and_reports.html

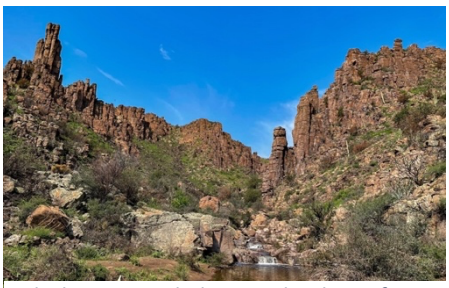
QMM conceded their "natural" water management system was not working, temporarily ceased discharge of mine basin water, and subsequently advanced a new, 13m dollar treatment plant for addressing high aluminium and low pH level (Acid Mine Drainage). There has been no public consultation and no results shared from a pilot phase of this treatment plant, despite requests from civil society. In contradiction of Rio Tinto's announcement at its 2022 AGM that the plant would offer a "permanent solution" to water management, QMM now acknowledges there is no in- country capacity for managing the residual waste[15] e.g., geotextile bags containing contaminants. Legacy issues arise if waste is buried on site. There are no Malagasy statutory limits for uranium. Local people complain of new illnesses since QMM arrived. An expert review of the radioactivity study that Rio Tinto commissioned from JBS&G (2019-2023) has concluded that "*A quantitative level of confidence in the conclusions presented in the report cannot be determined due to limitations of the study design*" (Swanson 2024). Expert analysis of the latest QMM water report (2021-2023) indicates the mine continues to be a source of contamination (Emerman 2024). In April 2024, a legal claim against Rio Tinto was launched based on Blood Lead Levels (BLL) of concern detected in locals.

Operational Risk: Conflict There has been repeated conflict around the QMM mine since 2007. The QMM weir changed local water chemistry, negatively impacting local fish stocks, and diminished fishing livelihoods have been a source of conflict since 2009[16]. Water quality has been at the centre of protests since QMM's tailings dam failures in 2022. Five protests with road blocks, military clashes and hostage taking have occurred within the last two years alone. More than 8,700 people submitted complaints against QMM in 2022. The ensuing compensation process has reportedly been marred by human rights violations[17], including "gagging orders", intimidation, and inadequate payments. Conflict in October 2023 resulted in the death of at least three protestors.

Other issues: Transparency It took two years for Rio Tinto/QMM to admit QMM's breach of an environmental buffer zone, which placed QMM mine tailings on the bed of Lake Besaroy in the local estuary system. The company denied the breach, claimed it was compliant and there was no impact. It supported its position by citing the environmental regulator (ONE). Neither QMM nor the ONE produced an impact assessment of the breach. Swanson's 2019 study revealed there had been no systematic monitoring of QMM's mine in the wider environment for radioactivity ingestion pathways, e.g., food and water. For four years, when asked to share water baseline data for the QMM site RT/QMM insisted there were none. However, 2001 studies of pre-mining phases were identified through civil society research and finally obtained in 2022. QMM failed to provide a promised external investigation into the 2022 tailings dam failures. A year and a half later, it was revealed that the company carried out its own *internal* investigation with only an external validation rather than a truly independent assessment. A promised report on the 2022 fish deaths (by WRG) is being withheld by the company. Civil society has repeatedly demanded independent audits of QMM.

Appendix 3

RESOLUTION COPPER MINE, OAK FLAT, ARIZONA, US



Oak Flat riparian habitat under threat from Resolution Copper in drought ravaged Arizona

Oak Flat is an ecological, sacred, and recreational haven on public land in the Tonto National Forest, in Arizona, an hour east of Phoenix, Arizona. Resolution Copper, wholly owned by the world's two largest mining companies, Rio Tinto and BHP, is proposing a very large underground copper mine that would create immense damage to the surrounding water resources and to a local cultural heritage site. The mine would also permanently destroy about 15,000 acres of public land, state trust land, and private land[18]. Water is so scarce in Arizona that there is not enough available to support this proposed project and for local communities and the environment.

Impacts on People and the Environment: Mine Tailings and Water Management

The US Forest Service released a Final Environmental Impact Statement (FEIS)[19] in January of 2021, but it was promptly rescinded (because it was not complete) in March, 2021. According to the FEIS the proposed Resolution

[15] Email correspondence from QMM to ALT UK/PWYPMG 5th January 2024
[16] https://pwyp.mg/en/publications/
[17] http://www.andrewleestrust.org/blog/
[18] https://docs.house.gov/meetings/II/II24/20210413/111424/HHRG-117-II24-20210413-SD005.pdf
[19] https://www.resolutionmineeis.us/sites/default/files/feis/resolution-final-eis-vol-1.pdf

Copper Mine would have multiple negative impacts including the use of more water annually than the City of Tempe, Arizona, a minimum of 50,000 acre-feet per year[20]. Additionally, it would create a crater roughly two miles wide and 1,000 feet deep at Oak Flat due to surface subsidence[21]. It is calculated the mine would dump nearly 1.5 billion tons of toxic mining waste into an unlined tailings dump, thus contaminating local water sources and other environmental resources. The preferred alternative tailings site would ultimately cover six square miles with a dam 490 feet high and would cause water pollution under the best of circumstances, while a tailings dam failure could pollute the Gila River all the way to Phoenix and beyond. Arizona is in its 25th year of continuous drought and scientists show that it's the worst drought Arizona has seen in 1,200 years[22]. Arizona is in a mandated "Tier-2" shortage declaration on the Colorado River and the Federal Government is likely to impose even harsher Colorado River water restrictions in the near-term. The proposed mine would seriously diminish water supplies for the town of Superior, Arizona. Water pumping by the mine would lower the water table significantly where the proposed mega-city of Superstition Vistas is planned and would impact the water supply for Pinal County farmers who are already strapped for water. The water pumping from the mine would imperil at least 16 springs at Oak Flat that are critical for religious practices, wildlife, and for recreation.

Operational risks

Project viability: These water impacts have direct consequences for Resolution Copper, which cannot overcome the fact that the proposed project incurs operational hurdles and risks that make it *not viable* as a project. The #10 test shaft Resolution Copper dug at Oak Flat encountered a 185-degree river of hot water at 6,300 feet below ground, while Resolution Copper's hydrologists said that no water would be encountered below 4,500 feet[23]. This river of hot water has already led to enormous cost overruns to treat this polluted water and to cool the shaft. Additionally, no one has ever constructed a block cave mine as large or as deep as the Resolution Copper proposal. Rio Tinto is so concerned about the project that it has paid a Canadian firm $17 million to conduct a feasibility study to determine whether mining is even possible, but the company should already know if the mine is feasible before taking claim of public lands and sacred sites and pitching the project to investors.

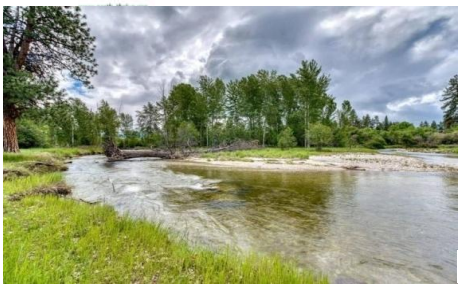
Social license: Given the water issues and threats from tailings, the sacred site reality, and setting aside the legal permits Resolution Copper will find it difficult to obtain, Resolution Copper is struggling to garner the critical social license to mine at Oak Flat. Rio Tinto and BHP have both promised to adhere to the international standards for Free, Prior, and Informed Consent (FPIC) from Native Americans and nearby residents. Many have clearly said "NO" to the project, not least because of the anticipated water impacts alone.

Additional concerns: Sacred sites Destroying Oak Flat would dry up sacred water sources[24] and cause risk of subsidence on the site through pumping of water at 7,000 feet. These and wider operational impacts of the project would cause the complete physical destruction of a federally-recognized Traditional Cultural Property (the Chí'chil Biłdagoteel Historic District) that is critical to the survival of centuries-old Apache sacred and cultural practices, including the girls' coming-of-age ceremony known as the Sunrise Dance, which is still being held there today. Consequently, it will be viewed as a failure to respect the company's commitments following the Juukan Gorge debacle to "never again" destroy sacred sites. Destroying the sacred site of Oak Flat is in Resolution Copper's mining plan, so expectations are that Rio Tinto's would have already abandoned the project on this basis alone.

Earth Thrive
NATURE RIGHTS

Appendix 4

LITHIUM MINE, JADAR, SERBIA



The proposed Rio Tinto lithium mine is situated in western Serbia in the vicinity of the town of Loznica, near the border with Bosnia. The lithium and borate rich mineral Jadarite is situated underneath two river ways, Jadar and Korenita, in a biologically and hydrologically rich and sensitive area. Rio Sava, the local subsidiary of Rio Tinto, has been active in the Jadar area since 2004, drilling more than 500 exploration holes.

River Jadar, after which the valley and the lithium ore are named.

[20] http://azminingreform.org/wp-content/uploads/2019/09/Arizona_Mining_Reform_Coalition_Report2_FINAL.pdf
[21] https://www.resolutionmineeis.us/sites/default/files/feis/resolution-final-eis-vol-1.pdf (see section ES-1.2)
[22] https://www.theguardian.com/environment/2022/sep/12/us-west-megadrought-climate-disaster
[23] http://azminingreform.org/wp-content/uploads/2023/10/Sinking-Americas-Deepest-Shaft-EMJ.pdf
[24] https://indianz.com/News/wp-content/uploads/2021/05/06/wells041321.pdf

Due to the large public opposition to the mine, Rio Tinto lost all licences to continue the project by governmental Decree in January 2022. The company mounted legal challenges against several of these decisions. Following the latest June 2024 elections, the Serbian government rapidly resurrected the project despite the mass protests and tremendous opposition of communities around the country. The leaders of that opposition are now being arrested, searched and/or threatened with their life. Rio Tinto keeps pushing for the Jadar project despite having no social licence to operate, which they stated at their AGM 2023 was one of their most important four pillars of work.

Impacts on People and the Environment: Mine Tailings and Water Management

Some 20 kilometres from the planned mining and processing area, the Jadar flows into the Drina, one of the key international rivers in the Balkans. The processing of the ore would involve use of large quantities of water with sulphur dioxide, sodium hydroxide, and large quantities of hydrochloric acid. Water for the processing of ore would be extracted from the alluvion of the Drina. During the exploration phase, the locals reported and complained of groundwater issues, but the company claims that there will be no impacts on groundwater from the mine. Groundwater sample analysis from just one drill hole revealed a number of concentrations way above standards, and the Institute for Public Health recommended the closure of the drill hole[25]. The area of the planned mine and processing zone is densely inhabited with thousands of people and is covered with arable land and used for agriculture. The main tailings disposal zone in Štavice/Rakovica is predominantly a forest area. The locals use groundwater for water supply and agriculture. The Strategic Assessment of Environmental Impacts of the Spatial Plan, elaborated to support the Spatial Plan, claims that "the area of the Spatial Plan as a whole has not been systematically biologically researched."[26] The same document also states that "The proposed development of mining activities will inevitably impact the hydrogeological regime within the exploitation area and cumulatively within the broader surroundings. The disturbance of the water regime may have indirect impacts on surface waters, and possibly also on soil fertility and water supply of the local inhabitants. Infiltration of polluting water into groundwater is possible under certain conditions.". These warning signals call for extensive inquiry.

Operational Risk: Social Licence In part because of these environmental impacts, the mine and processing operations are to be sited in an area increasingly subject to flash floods, including devastating ones in May 2014 and June 2020 correlated with impacts of climate crisis. Two tailing sites are planned, one within River Korenita in the flood plains of Jadar, and the larger one in the valley of River Rakovica, which is most prone to flash floods. The tailings facility in the Jadar Valley represents a marked departure from the previously publicly presented plans. Strong opposition to the mine has been expressed through frequent, massive protests, mostly initiated due to deep dissatisfaction of local communities with the communication of the company, and withholding of important information regarding the mine impacts. Despite the aggressive land acquisition campaign that the company pursued before losing the permits in January 2021, *it has not been able to buy a large part of the needed parcels*. A number of local land-owners do not want to leave, and they have broad national and international civil society support. The company stated at their April 2023 AGM that social licence is one of the most important four pillars of its business that it must fulfil. It is clear that it will not be able to keep this particular promise in Jadar.

Additional Concerns: Biodiversity Risks

The mining site is several kilometres south from the protected Mountain Cer, hosting an important biodiversity and bird area. It is close to a Landscape of Outstanding Features "Cultural Landscape Tršić-Tronoša" inhabited by 145 protected plant and animal species, including 62 protected under Serbian Law. Under the Bern Convention alone there are over 68 protected species in the region, and the mine is already planned to cover and directly affect at least 1860 hectares. There is an ongoing international legal complaint against the mine[27] filed by a consortium of international and local NGOs in 2021 at the Bern Convention for the Protection of Flora Fauna and Wild Habitats which is at the moment on stand-by ready to be actively opened should the company's plans to open the mine go ahead. That could make the mine illegal as it may be in breach of the international convention.

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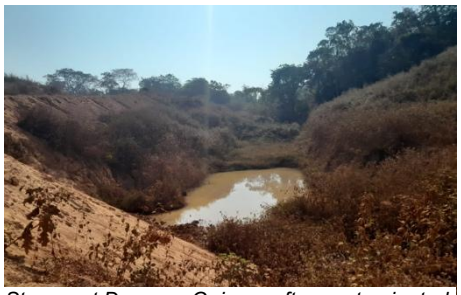
[25] See ANALIZA-JAROSLAV-CERNI.pdf (birn.rs), also Posledice istraživanja Rio Tinta: Bor iz podzemnih voda osušio detelinu | BIRN

[26] See SPU PPPPN JADAR JU.pdf (mgsi.gov.rs) page 13. Penultimate paragraph " Подручје Просторног плана као целина није систематски биолошки истраживано." Translation the area of the Spatial Plan as a whole has not been systematically biologically researched.

[27] The complaint was submitted to the Secretariat of the Bern Convention. Alleged threat to fauna species and protected sites due to the proposed construction of a lithium mine in the Jadar River Valley - Convention on the Conservation of European Wildlife and Natural Habitats (coe.int)

SIMANDOU AWARE

Appendix 5
SIMANDOU IRON ORE PROJECT, GUINEA



Stream at Damaro, Guinea, after contaminated by mud from Simandou project construction."

Rio Tinto leads the Simfer joint venture, an international consortium that is developing part of Guinea's Simandou deposit, the largest untapped, high-grade iron ore deposit in the world. Simandou's iron has been coveted by international mining companies for decades, but operational and political complications have hindered progress until recently. The project includes four mining blocks in the Simandou range – two of which have been attributed to Simfer, and the other two of which have been granted to the Chinese-led Winning Consortium Simandou (WCS)– a new industrial port, and a 650 km railroad. The project is currently in the construction phase.

Impacts on People and the Environment: Water Pollution, Tailing Management and Disruption of Water Supply

While Rio Tinto's mine is not yet in operation, the railroad traverses the territory of at least 450 communities and crosses several major waterways. The communities of Sekoussouriyah, Oure Kaba, Damaro, and Kounsankoro have already reported that sacred springs and streams from which they derive drinking water have been polluted with mud and other effluent from the construction.[28] These instances of pollution are in violation of the project's Environmental and Social Management Plan (ESMP), in which the developers commit to implementing systems for the management of sediment and the treatment of effluent before allowing it to flow into natural watercourses.[29]

Water impacts are projected to worsen as the project evolves. Expert analyses of the Environmental and Social Impact Assessment (ESIA) for WCS's mine[30] reveal numerous grave risks, including:

- Irreversible damage to mountain streams and the water table, degrading the supply of groundwater to local communities in a wide catchment area, many of which already report dry season water shortages.[31]
- Acid formation leaching heavy metals such as arsenic and cadmium into water courses,[32] including the headwaters of the Niger River, a lifeline for millions of people in West Africa.[33]
- Overflow of effluents into a Ramsar-protected wetland.[34]

These ESIA analyses also noted that the water studies were based on outdated data or samples collected far from the mine site,[35] or were conducted according to faulty protocols. Key studies and plans for management of water resources and effluents are completely missing.[36] Overall, the mitigation measures proposed are inadequate and miserly.[37] Rio Tinto appears to be following the same pattern as WCS with its half of the Simandou deposit. Their ESIAs are not yet publicly available, but it is known that the Guinean government approved the ESIAs "with reservations" in early February 2024.

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[28] Action Mines, *Note synthèse de quelques insuffisances de la mise en œuvre du plan de gestion environnemental et social en lien avec le constat sur le terrain du projet Simandou des blocs 1 et 2 realisé par Winning Consortium Simandou*, pp. 28-30 (May 2022), *available at* https://actionminesguinee.org/wp-content/uploads/2023/06/05052023-VF-NOTE-SYNTESE-DANALYSE-DES-INSUFISANCES-DE-LA-MISE-EN-OEUVRE-DES-EIES-DU-PROJET-SIMANDOU-BLOC-1-ET-2-WCS-REVUE.pdf.

[29] The ESIA for the railroad was drafted and validated by WCS, not Rio Tinto/Simfer. The two consortia have, however, formed a joint venture for the co-development and operation of the railroad; WCS's commitments and responsibilities therefore apply equally to Rio Tinto and Simfer.

[30] WCS's ESIAs have been fully validated and released to the public, while the ESIA for Rio Tinto's mine has not been shared publicly. Analysis of the likely impacts of the project focus thus for now on WCS's mine, which is similarly situated from a geographical standpoint.

[31] Memorandum of Dr. Gilles Wendling, *Projet de Construction de la mine Simandou, République de Guinée – Revue et Critique de L'Étude d'Impact Environnemental et Social – Aspect Eau*, pp. 9-10 (November 2022), *available at* https://elaw.org/wp-content/uploads/archive/attachments/publicresource/SimandouEauELAWnov2022.pdf; Memorandum of Dr. Gilles Wendling, *Projet de Construction de la mine Simandou, République de Guinée – Revue et Critique de L'Étude d'Impact Environnemental et Social – Aspect Parcs à Résidus (ou Stériles)*, pp. 23-26 (January 2024).

[32] Wendling Water Impacts Memo, *supra* n. 4 at 11, 15-16.

[33] Wendling Tailings Memo, *supra* n. 4 at 14, 25.

[34] *Ibid.* at 9, 10, 11, 16.

[35] *Ibid.* at 2-3.

[36] *Ibid.* at 29-30; Wendling Water Impacts Memo, *supra* n. 4. at 3-6, 10-11, 14-15.

[37] Wendling Tailings Memo, *supra* n. 4 at 32-33.

Simfer is thus able to begin project construction even though the government's technical review committee is not satisfied with the analysis. And in fact, the company had already begun land acquisition and construction *before* its ESIAs were validated, a clear violation of Guinean law.

Operational Risks: If Rio Tinto/Simfer continue to develop the project as they have to date, they run serious operational risks that investors should be aware of, including:

- *Legal licence to operate*. Simfer has already violated Guinean law by polluting water sources and beginning construction before its ESIAs were validated, and it has failed to respect the terms of its Mining Convention on environmental protection. Such violations are grounds for suspension or revocation of operating licences.
- *Social licence to operate.* If pushed to desperation by the destruction of water sources and loss of land, determined opposition by Guinean communities along the rail route and in the mine area could easily make it impossible to operate.
- *Regime change.* There is ample evidence of criminal violations of Guinean law to give the next government a basis to revoke Simfer's licence, should the current military regime fall or transition to civil rule.
- *Reputational risk and access to finance*. The impacts and risks to water resources are inconsistent with IFC Performance Standards and Equator Principles; institutional finance could thus dry up if the risks identified become a reality.

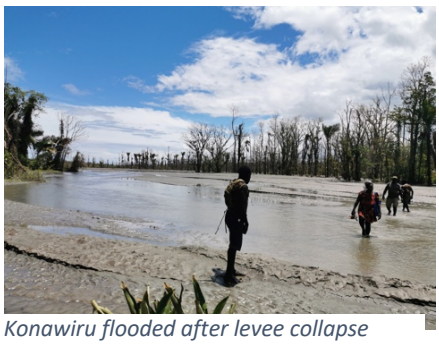
Other Issues: The Simandou project has already been associated with land-grabbing, degradation of farmlands and fish stocks, and destruction of livelihoods along the rail line, around the port, and within the mining concessions. Much of the rail route passes through territory that is home to endemic and protected species, e.g., chimpanzees and forest elephants. The biodiversity management plans that have been released are grossly inadequate for protecting these flora and fauna.

Finally, the publicly available ESIAs appear to substantially underestimate the climate change impact of the Simandou project. While Simandou's iron is of sufficient purity that it could, in theory, be used for nearly carbon-neutral steel, there is little information about whether the infrastructure exists to transform the iron ore from the mine site into "green" steel. The project will, moreover, be powered by a greenhouse gas-intensive heavy fuel oil plant.

Human Rights Law Centre

Appendix 6

PANGUNA COPPER AND GOLD MINE BOUGAINVILLE



Konawiru flooded after levee collapse

In 2020, Indigenous communities in Bougainville brought an OECD complaint[38] against Rio Tinto for the ongoing disastrous impacts of the company's former Panguna copper and gold mine. Life-sustaining rivers and land were destroyed by the release of over a billion tonnes of tailings waste into the Jaba and Kawerong rivers between 1972 and 1989. The environmental disaster contributed to an uprising against the mine and triggered a 10-year civil war. From the start of operations until divestment in 2016, Rio Tinto was majority owner of Bougainville Copper Ltd (BCL), which operated the mine. The lives and livelihoods of people in local communities continue to be seriously jeopardized by the mine's impacts.

Impacts on People and the Environment: Mine Tailings and Water Management

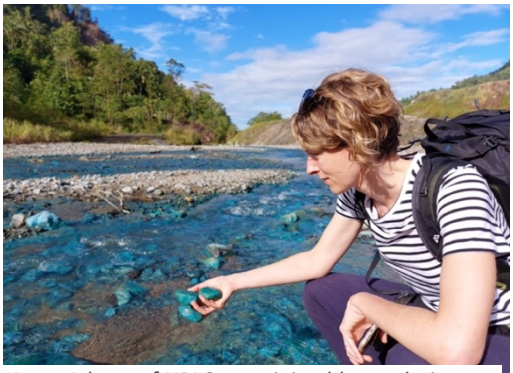
Water contamination, collapsing levees, and the spread of vast amounts of tailings waste, which pollute and choke major water catchments and flood villages, are major concerns. In response to the OECD complaint, Rio Tinto agreed to fund an independent environmental and human rights impact assessment to understand the costly legacy issues caused by its mine, including in relation to water contamination and the spread of tailings waste.

[38] The complaint was lodged with the Australian National Contact Point for Responsible Business Conduct. https://www.hrlc.org.au/news/2020/9/28/bougainville-communities-file-human-rights-complaint-rio-tinto

Operational Impact: Independent impact assessment

Phase 1 of the Panguna Mine Legacy Impact Assessment (PMLIA), focused on acute ongoing risks and impacts for communities, was launched[39] in 2022 by the President of Bougainville, the Honourable Ishmael Toroama. It is due to report in late 2024. Key principles underpinning the assessment include maximising community participation and decision-making roles for local Bougainvillean leaders, independence, non-discrimination, and transparency. Key features reflecting these principles include:

- Oversight by a multi-stakeholder Committee[40], which includes significant representation from local clan leaders, landowners, and the complainants, as well as representatives from the Bougainville and PNG, Governments, Rio Tinto, BCL, and the Human Rights Law Centre. See http://tanorama.com/pangunasecretariat.html
- An Independent Facilitator to chair the Committee and a five-person Secretariat, most of whom live locally. Twenty community-based facilitators are involved in community engagement. Committee responsibility for the scope of work and appointment of the independent primary contractor to carry out the assessment.[41]
- A company with independent directors, the Panguna Legacy Assessment Company, set up to directly fund the Committee's operations and the work of the primary contractor.
- A commitment to making any reports setting out the findings public and translating these into local languages.



Keren Adams of HRLC examining blue rocks in polluted river downstream of the Panguna mine

This impact assessment is an example of an approach that Rio Tinto should be taking to current operations, as well as legacy impacts, to identify, prevent and mitigate environmental and social impacts, including water impacts, and to build trust with local communities about its operations. If impact assessments are going to have positive benefit to communities, it is critical that Rio Tinto then follows through and acts on its commitments to remediation of adverse human rights and environmental impacts linked to its operations which are identified through these assessments.[42]

A need to commit to remediation, in line with company policy

One of the biggest risk factors associated with the Panguna impact assessment is the lack of company commitment to date to remedying mine-related impacts identified. To date, Rio has only agreed to fund the assessment, even though preliminary investigations have already identified[43] serious risks to communities posed by collapsing levees and flooding. As Theonila Roka Matbob, local landowner and MP, said to the New York Times[44]: *"we are always worrying that the food we eat, the water we drink and the air we breathe is not safe. We worry about levees collapsing and mine waste flooding our lands and communities."*

Communities urgently need Rio Tinto to *commit to remedying* impacts identified, including any impacts on water and to taking immediate steps to mitigate safety risks to communities. Pressure on the ground is building and the lack of any clear commitment by the company to solutions is eroding community confidence.

Committing to follow through and address impacts caused or contributed to by company operations is consistent with company policy. It would show that Rio Tinto is prepared to walk the talk on human rights and the environment. This step is critical to supporting the company's ambition to have impeccable environmental, social, and governance credentials locally and globally[45].

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[39] https://www.hrlc.org.au/news/2022/12/2/historic-environmental-and-human-rights-assessment-of-rio-tintos-former-panguna-mine-begins

[40] http://tanorama.com/pangunasecretariat.html

[41] Independent global consulting firm, Tetra Tech Coffey, was appointed primary contractor for Phase 1 by the Oversight Committee after a robust tender process.

[42] Rio Tinto, 'Human Right Policy' approved by its Board (Oct 2022), effective from January 2023: https://www.riotinto.com/-/media/Content/Documents/Sustainability/Corporate-policies/RT-Human-rights-policy.pdf

[43] https://www.abc.net.au/listen/programs/radionational-breakfast/panguna-mine-assessment-finds-levee-almost-certain-to-collapse/101385084

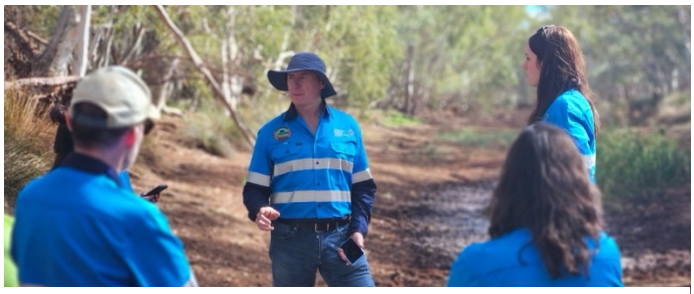
[44] https://www.nytimes.com/2022/12/05/world/australia/bougainville-rio-tinto-mine.html

[45] Reference: Rio Tinto, *Human Rights Policy* (approved October 2022).

ROBE RIVER KURUMA ABORIGINAL CORPORATION RNTBC ICN 7612

Appendix 7

ROBE VALLEY OPERATIONS, PILBARA IRON ORE, AUSTRALIA



RRKAC CEO with Investors at the now dry Yalleen, once a permanent local water pool

Robe River is a joint venture between Rio Tinto (53%), Mitsui Iron Ore Development (33%), and Nippon Steel Australia Pty. Ltd. (14%). Iron ore mining operations began in the Robe Valley in the Pilbara in 1972 on the traditional lands of the Robe River Kuruma (RRK) people.

The Robe River Kuruma Aboriginal Corporation (RRKAC) is the Registered Native Title Body Corporate for the Robe River Kuruma (RRK) people. The RRK people have traditional rights to an area covering nearly 16,000 square kilometres in the Pilbara Region of Western Australia, with almost 10,000 square kilometres determined through two native title consent determinations which occurred in 2016 and 2018 respectively. These lands lie within the Shire of Ashburton, and comprise part of the Fortescue River, and the complete Jajiwurra (Robe River) system located in the most westerly part of the Hamersley Range. The RRK people are named after the Robe River or Jajiwurra. A resilient and proud nation, the Jajiwurra is their lifeblood and the core of their identity. They carry cultural obligations to look after the landscape, including the Bungaroo cultural precinct, which is part of the Robe River system.

Water abstraction for mining purposes (dewatering) in the Pilbara has long been a cause of environmental concern and cultural devastation to Traditional Owners. In particular, the Bungaroo Coastal Water Supply Scheme, linked to Rio Tinto's coastal operations, has been a continuing and growing concern to RRK people since its commencement around 2012. The RRK people are deeply hurt by watching the Bungaroo suffering from Rio Tinto's water supply abstraction. RRK People want ***this water abstraction from their lands to cease*** before irreparable damage is done to the Bungaroo.

Impact on People and the Environment: dewatering/over abstraction

The Bungaroo catchment area was designated as an area for the supply of drinking water in approximately 2012 under Country Areas Water Supply Act 1947. Rio Tinto Iron Ore operates the borefield that supplies water from the Bungaroo to the State for use by the coastal towns of Karratha, Dampier, Roebourne, Wickham and Point Samson, situated almost 200km from RRK country and the borefield. Under their licence, as much as 10 Gigalitres (GL) per annum can be abstracted from the Bungaroo catchment to send to the coast while the conditions on the licence fail to protect against resulting damage to the surrounding environment and culturally significant places in RRK Country.

Over recent years, six gigalitres of water has been taken from the Bungaroo, which is the same approximate quantity that is being used by Rio Tinto for its port (70%) for dust suppression and coastal operations (30%), which includes residential supply. The licenced water allocation of 10GL per annum is already substantial and was allocated under a period of high rainfall. Alternative sources of water, such as desalination coupled with major reductions in usage, including enclosing car dumpers and stockpiles, could avoid the significant degradation that is occurring on RRK Country.

Water (bawa) is a vital part of RRK people's cultural identity. The RRK people have seen many detrimental changes to the Bungaroo water system and surrounding Country since the use of this water to supply Rio Tinto's operations started. Rio Tinto's own impact studies acknowledge that vegetation impacts, including tree deaths, can be attributed to the over-use of water taken from the aquifer. An independent hydrogeologist, employed by RRKAC to review Rio Tinto's water and environmental data, concluded:

- There have been consistent breaches of groundwater level criteria, demonstrating concerns that recharge is not occurring in the aquifer as immediately needed.
- Current levels of abstraction are not sustainable and *immediate* reduction in abstraction is required to support recovery and stabilisation.
- An important permanent pool (Old Yalleen Well) recently dried out despite a recent river flow and moderate rainfall. How much of the impact is attributable to Rio Tinto abstraction warrants urgent impact assessment/investigation.
- The entire Bungaroo Valley is potentially a groundwater dependant ecosystem (GDE), not just the areas near the river. The Coastal Water Supply demand is causing impacts across most of the valley, particularly the southern side. Further and improved impact assessment including targets and triggers are required across the Bungaroo Valley, especially in relation to Rio Tinto's abstraction and use.

Operational Risks: Irreparable damage to traditional owners and their lands

The Bungaroo water catchment area allocation occurred with virtually no consultation with RRK people and progressed despite the Traditional Owners raising significant concerns when it was flagged with them in the context of negotiations with Rio Tinto in 2011 over land access. The RRK People said "no" to water abstraction and do not believe that Rio Tinto or the State achieved their Free, Prior and Informed Consent (FPIC) under the United Nations Declaration on the Rights of Indigenous Peoples (2007). Their elders were adamant they did not want mining in the Bungaroo and they did not want water taken from the last undisturbed river system in their Country. The RRK people are not anti-mining, but were very clear against water abstraction in the Bungaroo and suggested the desalination option. The RRK people were ignored.

RRKAC understands that a desalination plant will now be commissioned in Q2 2026 and will be at full capacity of 4 Gigalitres by Q4 2027. Rio Tinto indicates that it will nevertheless still take up to 3 GL of water from the Bungaroo from 2027. Rio Tinto's position is that level of abstraction to stabilise the aquifer is 3 GL and this will not be achieved until 2027. The RRK people believe that ***all water abstraction should cease.*** Failure to listen to the RRK people will result in Rio Tinto losing its social licence at Robe Valley.

Additional Concerns: Sacred and cultural heritage

For the RRK people water is not a resource or commodity but a sacred entity that is deeply interconnected with cultural, spiritual, and physical well-being. The RRK people see water as a spiritually significant element, closely associated with creation, life, and renewal. They believe that water has a soul and embodies spiritual powers. Rituals and ceremonies are performed to honour and connect with water.

The Bungaroo Cultural Precinct is centred on the valley and the bordering hills and plains that follow the course of Bungaroo Creek, and then converges with Jimmawurrada Creek near the existing Mesa J mining area and then discharges into the (Jajiwurra) Robe River. There is a narrative that connects the area of the valley relating to an important RRK dreamtime story. The Bungaroo has a rich archaeological and ethnographic history, with many creation and dreamtime stories attached to it, thalu sites, burial grounds, law grounds, rockshelters and burial sites, all with powerful spiritual associations

The Bungaroo Valley itself is an important wider cultural precinct to the Robe River Kuruma people, being the location of important stories, sites and hunting, fishing, camping and other social and cultural activities. It is also a navigational path for people travelling through the Hammersley Ranges, for trade, for law and is an important feature of the Robe River Kuruma landscape.

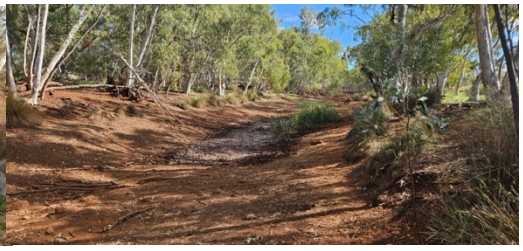


Image Left: Old Yalleen May 2023
Image Right: Old Yalleen July 2024

Appendix 8

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