# Ok Birim Tailings Storage Facility Project

Environmental and Social Impact Assessment

## Chapter 3

Policy, legal and administrative framework

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OK TEDI MINING

# 3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This chapter outlines the legislative and policy framework relevant to the proposed Ok Birim Tailings Storage Facility (TSF) Project (the project). It provides an overview of the national laws, international standards, and environmental agreements that relate to the environmental and social impact assessment (ESIA) and approval process.

## 3.1 RELEVANT LEGISLATIVE FRAMEWORK AND PROJECT PERMITTING

This section outlines the relevant requirements for the assessment, approval and development of the project. Unlike other mining operations in Papua New Guinea (PNG), the Ok Tedi Mine operates under a project-specific legal regime. The *Mining (Ok Tedi Agreement) Act 1976* (Ok Tedi Agreement) and supplemental agreements under this act set the legal foundation for Ok Tedi Mining Limited (OTML) operations, while the *Ok Tedi Environment Management Act 2019* (OTEMA) establishes a standalone environmental management framework tailored to the Ok Tedi Mine.

Under OTEMA, the project will require a major amendment to OTML's existing Environment Permit EP-L3(636). This ESIA has been prepared in accordance with OTEMA requirements for assessing environmental and social impacts, as well as to align with the Department of Environment and Conservation (DEC) *Guideline for Conduct of Environmental Impact Assessment and Preparation of Environmental Impact Statement* (DEC 2004).

### 3.1.1 Mining (Ok Tedi Agreement) Act 1976

The Ok Tedi Agreement was established to provide the legal framework to facilitate the development exploration and extraction of resources at the Ok Tedi Mine. The act reflects the specific historical and socio-economic context of the Ok Tedi Mine when PNG was transitioning towards independence, and has since regulated the mining operations, along with each of the eleven successive supplemental agreements. The Ok Tedi Agreement governs OTML's tenure, rights and obligations through a binding contractual framework with the State.

The *Mining Act 1992* (Mining Act) was later developed to create a unified and modern regulatory framework for PNG's mining sector, reflecting broader national develop goals and environmental concerns, including licensing procedures, environmental assessments, and compliance requirements. The act's aim is to standardise regulations across all mining operations in PNG, promoting consistency and clarity in the mining sector.

While the Ok Tedi Agreement is the principal agreement through which OTML operations was established, some aspects of OTML operations are governed by the Mining Act. For example, the Mining Act is the current legal framework under which special mining leases, leases for mining purposes and mining easements are acquired.

#### 3.1.1.1 Supplemental agreements

The Ok Tedi Agreement has been supplemented by eleven agreements that address evolving operational, environmental, and social issues related to the mine. Social responsibility, compensation and benefit-sharing have been a focus of the supplemental agreements. While the specific detail of each supplemental agreement is complex, it is summarised in Table 3.1.

**Table 3.1 Mining (Ok Tedi Agreement) Act 1976 supplemental agreements overview**

| Mining (Ok Tedi Agreement) 1976 | Summary |
|---|---|
| Supplemental Agreement No. 1 (1978) | Made additions to the environmental management and protection provisions of the head agreement, including the requirement that a yet to be constructed tailings dam was to be maintained following mine closure. |
| Supplemental Agreement No. 2 (1981) | Reflected various changes in ownership of the members of the consortium with whom the State had originally contracted, resulting in the establishment of OTML. |
| Supplemental Agreement No. 3 (1983) | Specifically made to '… resolve the issue of environmental liability between them (the parties) in respect of any damage that may be caused to the Fly River and its environs in the territory of the Republic of Indonesia'. The company's liability was limited to establishing the extent of any pollution of the boundary waters and the Indonesian river bank. |
| Supplemental Agreement No. 4 (1985) | This agreement was between nine parties, the State, most of the original consortium members, and OTML, regarding financing of, and loans to, OTML. |
| Supplemental Agreement No. 5 (1985) | Inserted a new sub-clause into Clause 29 of the original agreement, relating to the letting of a Tailings Major Contract. |
| Supplemental Agreement No. 6 (1986) | Addressed pollution in the Ok Tedi/Fly River system and set conditions to minimise this while enabling the mine to continue operating. An Environmental Study commenced in 1986 and was completed in 1989. The State extended approvals for tailings and waste rock riverine disposal, pending the determination of a binding acceptable particulate level, which was set in 1990. At the same time, an environmental monitoring program was designed to compare actual impacts with 12 other predicted but non-binding monitors. The rationale was that the predicted levels for the non-binding monitors would not be exceeded provided the acceptable particulate level was not exceeded. |
| Supplemental Agreement No. 7 (1986) | Focussed on financing. |
| Supplemental Agreement No. 8 (1995) | Created an out-of-court settlement for the pollution damage to the Ok Tedi/Fly River system and offered a compensation package to those affected. |
| Supplemental Agreement No. 9 (2001) | Attempted to balance the prospect of continued environmental damage against the advancement of the social and economic welfare of the people of Western Province, and the gross domestic product of the nation, and resolved that the benefits of continuing the mine outweighed the detrimental impacts. The Ninth Supplemental Agreement allowed landowners who had signed individual community/clan settlement agreements to claim compensation. |
| Supplemental Agreement No. 10 (2013) | Included cancellation of the shares held by the PNG Sustainable Development Program Limited and the transfer to the State. It gives the Prime Minister discretion over compensation arrangements on advice of the National Executive Council. |
| Supplemental Agreement No. 11 (2014) | Resulting from the Mine Life Extension Project, this focused on amendments to administrative provisions and updates to community mine consultation agreements. |

#### 3.1.1.2 Status of OTML leases

OTML holds a combination of mining and supporting leases granted under the *Mining (Ok Tedi Agreement) Act 1976* and the Mi*ning Ac*t.

The Special Mining Lease (SML) 1 (0) covers the Mt. Fubilan open pit and associated processing facilities. In addition to the SML 1 (0), OTML holds 22 leases for mining purposes, three mining easements, and three exploration licences (OTML 2024b). OTML holds a further ten leases under the *Land Act 1996*.

The SML 1 (0) was issued in 1981 for a 21-year term under the Ok Tedi Agreement. This was extended for a further 20 years in 2002 under the Mining Act. Priory to expiry in 2022, OTML submitted an application for renewal of the SML 1 (0) and associated leases for mining purposes. This resulted in the renewal of the SML 1 (0) along with 22 leases for mining purposes, and two mining easements associated with the SML 1 (0) (OTML 2024b).

The proposed TSF is located within a proposed lease for mining purposes. Other project infrastructure, such as the tailings pipeline and access road, may fall under existing tenures (such as in the Alice Pit area and near the mine) or require new mining easements or land access applications under the *Land Act 1996*.

Table 3.2 provides a summary of current lease types and relevant expiry dates. Figure 3.1 shows an overview of the location of those in the project area relative to the leases proposed for the project.

**Table 3.2 Status of OTML leases**

| Lease type | Number of leases | Expiry date | Purpose |
|---|---|---|---|
| Special Mining Lease | 1 | 2042 | Covers Mt. Fublian pit and processing plant |
| Leases for mining purposes | 22 | 2042 | Supports infrastructure (e.g., gravel pits, roads, environment stations, Bige dredging operations) |
| Mining easements | 3 | 2042 | Supports infrastructure access |
| Exploration licences | 5 | Varies | Exploration and resource extension |
| Leases under *Land Act 1996* | 10 | Varies | Supports field bases and supporting infrastructure |

### 3.1.2 Ok Tedi Environment Management Act 2019

The OTEMA is the principal legislation for regulating the social and environmental effects of the Ok Tedi Mine and is administered by the PNG Conservation Environment Protection Authority (CEPA). OTEMA established a comprehensive environmental management framework governing the Ok Tedi Mine. Environment Permit EP-L3(636) is granted under OTEMA.

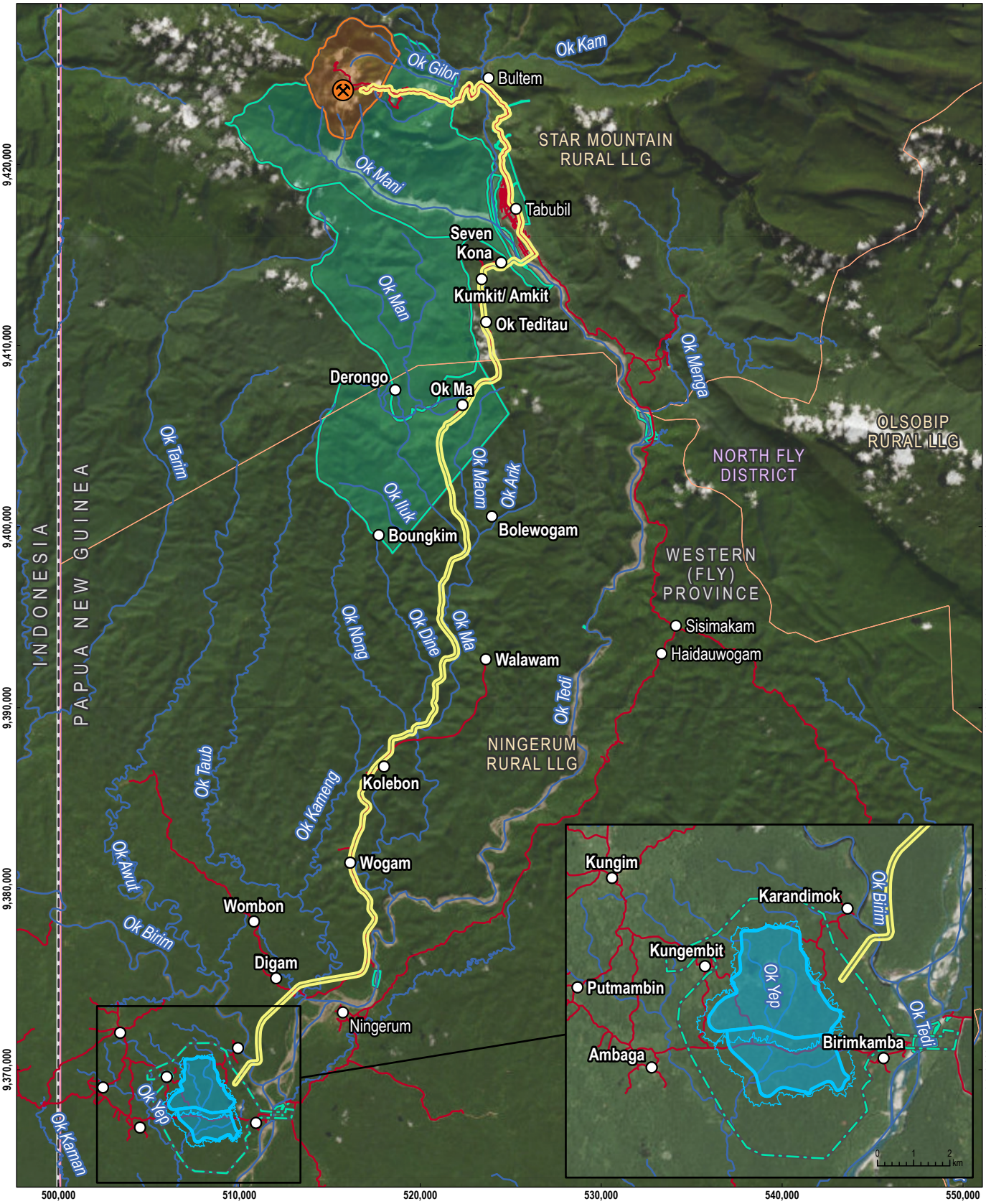
OTML's obligations regarding environment permit conditions and requirements relate to environmental management, monitoring, and compliance as mandated by the OTEMA are enforced and regulated by CEPA. OTEMA and the environment permit include details about environmental management plans, monitoring programs, waste management practices, and obligations to minimise environmental impacts.

As the Ok Tedi Mine is governed by the Ok Tedi Agreement and its supplemental agreements, its environmental performance is not regulated under the *Environment Act 2000* (Environment Act). Instead, the OTML Environmental Regime was adopted in 2001 in accordance with the Ninth Supplemental Agreement under the Ok Tedi Agreement. The Environmental Regime set out core environmental values and associated monitoring activities to be undertaken by OTML. This was reviewed by the Department of Environment and Conservation (now CEPA) as part of the Mine Life Extension project in 2013, which triggered a transition towards typical requirements of other mines in PNG regulated under the Environment Act. OTEMA supersedes the Environmental Regime.

The draft OTEMA and associated environment permit were developed in 2014, established to align closely with the Environment Act while also reflecting the unique circumstances of Ok Tedi Mine. Section 13 was gazetted in 2018, which enabled the environment permit to be issued and managed through CEPA. The remainder of OTEMA was fully gazetted in September 2024.

OTEMA and its associated permit conditions, regulations and technical standards are intended to regulate OTML mining operations. The Draft Ok Tedi Environment Permits Regulation 2022 is currently under consideration by CEPA and the associated technical standards to support its enforcement are yet to be developed.

The project constitutes major changes that trigger the first permit amendment under OTEMA.




**LEGEND**

- Ok Tedi Mine
- Community
- Road/track
- Watercourse
- LLG boundary
- District boundary
- Province boundary
- Existing LMP boundary
- Existing SML boundary

**Proposed layout**

- TSF footprint
- Infrastructure corridor
- LMP boundary

SOURCE
Villages from Tetra Tech Coffey.
Proposed infrastructure from KCB and OTML.
Topographic features from OSM. Leases from MRA.
DEM from SRTM. Imagery from ESRI.

0 2.5 5 km

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OK TEDI MINING LIMITED
OK BIRIM TAILINGS STORAGE FACILITY PROJECT

**FIGURE 3.1**

**OTML leases**

TETRA TECH COFFEY

DATE: **19.06.26** PROJECT: **754-MELEN374244** FILE: **374244C_R08_F03.01_GIS**

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#### 3.1.2.1 Permit amendments

The following sections describe the approval context, activities that trigger the need for an environmental impact assessment, the process for undertaking an environmental impact assessment and submitting an environmental impact statement (EIS) as a prerequisite to project approval, and issues to be addressed in the EIS (and guidelines and standards applicable to the assessment).

Section 16 of OTEMA defines the process for a major and minor amendment to the environment permit. This includes:

> *(1) An amendment to the Ok Tedi Permit is a major amendment if the amendment affects or is made in respect of an activity which -*
>
> *(a) may result in serious environmental harm; or*
>
> *(b) may have a significant negative impact on a matter of national importance; or*
>
> *(c) may significantly change, alter or replace the environment management regime prescribed in the Ok Tedi Permit and any other amendment is a minor amendment.*
>
> *(4) Where the Director determines that the amendment is a major amendment, the Director shall -*
>
> *(a) issue a notice to undertake an environmental impact assessment under Section 20 in relation to the proposed amendment; and*
>
> *(b) in any case, having regard to criteria set out in Section 5, may grant an amendment of the permit.*

The definition of 'Serious environmental harm' is the same as the Environment Act, and means environmental harm:

*(a) that causes, or could reasonably be expected to cause, detriment to any beneficial value that is irreversible, of a high impact or widespread; or*

*(b) that causes, or could reasonably be expected to cause, actual or potential harm to beneficial values relating to an area of high conservation value or special significance; or*

*(c) that causes or would cause loss or damage to property of an amount exceeding KIOO,OOO.OO; or*

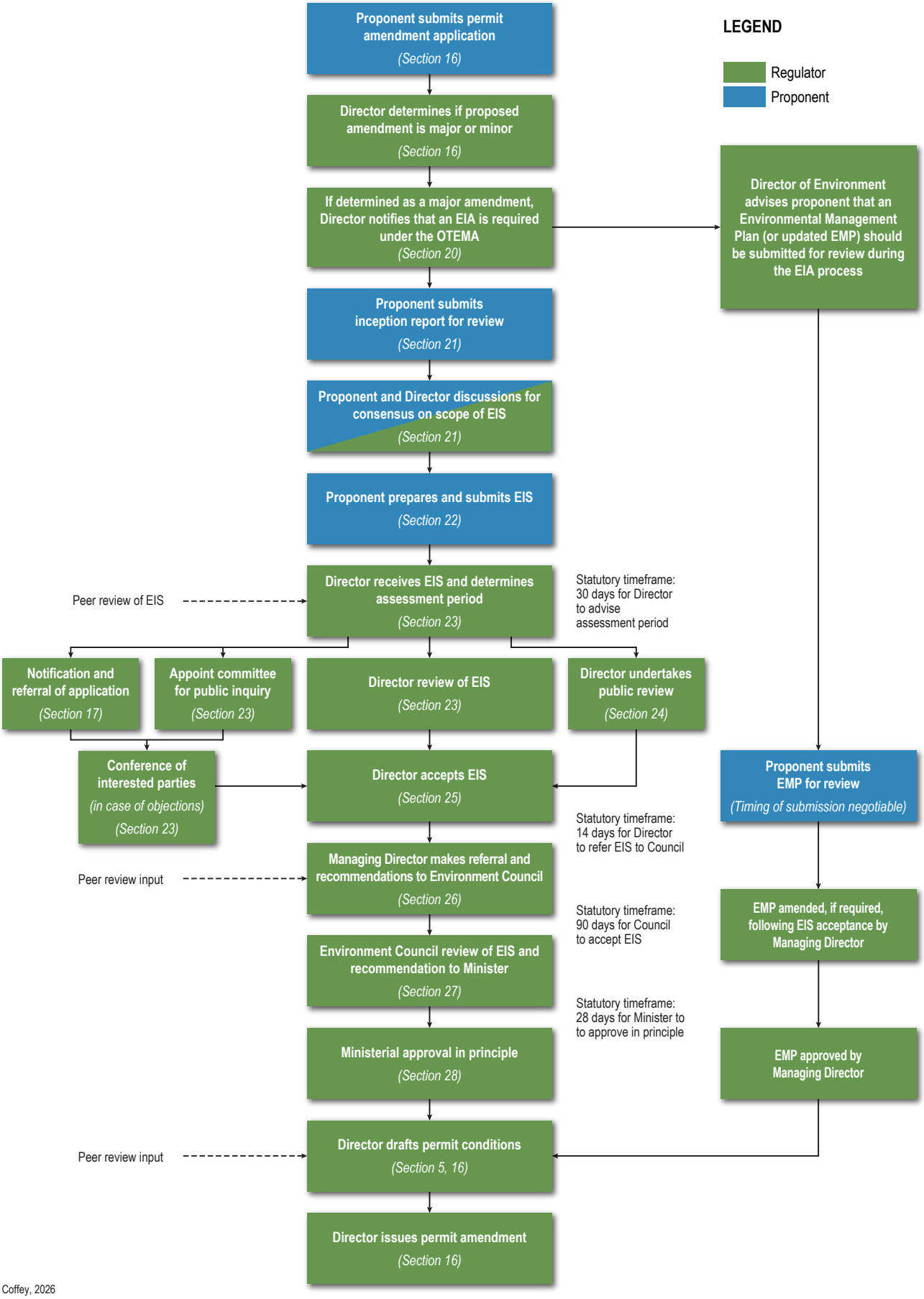
*(d) that results or would result in costs of more than KIOO,OOO.OO in taking appropriate action to prevent or minimise the harm, or rehabilitate or restore the environment to its condition before the harm occurred.*

A major amendment requires the permit holder to undertake an environmental impact assessment (i.e., submit an EIS) in accordance with Division 4 of OTEMA which requires in principle approval from the Minister via a recommendation of the Environment Council prior to granting a major amendment. A minor amendment only requires approval at the Director of Environment level (i.e., Managing Director of CEPA). There is no prescription of what is required for a minor amendment; however, for any project to be deemed a minor amendment it would need to be demonstrated that it will not result in serious environmental harm.

Figure 3.2 shows the environmental approvals process for a major amendment under OTEMA.

Factors to consider when understanding whether a project would trigger a major or minor amendment include:

- Whether the activity may significantly change, alter or replace the environment management regime prescribed in the Ok Tedi Permit.
- The extent, duration and severity of impacts.
- Whether the activity impacts on a new catchment previously unaffected by mining.
- The receiving environment downstream and its environmental and social significance.
- Environmental (e.g., protected area, habitat and species of conservation significance) and social sensitivities (e.g., impacted settlements, land use, natural resources).




SOURCE
Tetra Tech Coffey, 2026

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OK BIRIM TAILINGS STORAGE FACILITY PROJECT

**FIGURE 3.2**

**OTEMA major permit amendment process**

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#### 3.1.2.2 Major permit amendments

Under OTEMA, the proposed changes to the Ok Tedi Mine for the development of the project will trigger a major permit amendment due to the potential to result in serious environmental harm as defined by the act and significantly changing the environment management regime prescribed in the environment permit (i.e., replacing riverine tailings disposal with on-land tailings disposal).

OTEMA states that a major amendment requires the permit holder to undertake an environment impact assessment – a three-step process involving:

- Submission of a permit amendment application (Section 16).
- Submission of an environmental inception report (EIR) in accordance with Division 4, Section 21. This is a scoping document that is developed through consultation between the proponent and the Managing Director (of CEPA), who may discuss proposed issues to be covered in the environmental impact statement.
- Submission of an EIS in accordance with Division 4, Section 22. This requires in principle approval from the Minister via a recommendation of the Environment Council prior to granting a major amendment. The EIS addresses the issues set out in the EIR and substantially complies with CEPA's information guideline for conduct of environmental impact assessment and preparation of EIS (DEC 2004).

The CEPA Managing Director will make a preliminary assessment after the EIS is submitted and before making it available for public review (Section 23). For the purpose of the public review, the proponent will be required to make presentations to persons and/or communities who are likely affected by the carrying out of the activity. CEPA's Managing Director will accept the EIS following public review if they are satisfied that (Section 25):

*(a) an environmental impact statement contains an adequate description of the nature and extent of physical and social environmental impacts which are likely to result from the carrying out of a proposed activity; and*

*(b) all reasonable steps will be taken to minimise environmental harm which may result from the carrying out of the activity; and*

*(c) the activity will be carried out in a manner which is consistent with all the Act and the Ok Tedi Technical Standards.*

The Managing Director's assessment report and any public submissions will also be referred to the Environment Council, an independent multi-disciplinary panel of experts. The Environment Council has 90 days to decide whether it is satisfied with the EIS. If the Environment Council is not satisfied, the EIS is returned to the proponent for revision and resubmission. If the Environment Council is satisfied, it will advise the Minister for Environment and Conservation to approve the proposed activity in principle (Section 28).

Once the Minister has issued in principle approval, CEPA will then finalise the revised conditions of the environment permit and issue the amended permit under OTEMA. This is the final step in the environmental and socio-economic impact assessment and approval process.

#### 3.1.2.3 Ok Birim Tailings Storage Facility Project major amendment

An EIR presentation meeting was held on 8 May 2025 in Port Moresby with CEPA to introduce the project, seek initial feedback on the process, and respond to questions. The draft EIR was updated to incorporate CEPA's feedback and was submitted to CEPA with the permit amendment application on 6 June 2025. Although not legally required to do so, CEPA approved the EIR on 20 March 2026.

The EIR provides a preliminary identification of the key issues to be covered, the proposed technical studies, and the composition of the study team for the development of the ESIA. This ESIA fulfils the requirement for

an EIS under the major amendment process. Attachment 1 provides a cross-reference showing where each of the identified issues has been addressed within this ESIA.

Table 3.3 lists the key statutory submissions OTML has issued to CEPA as part of the major permit amendment approval process.

**Table 3.3 Summary of key statutory submissions**

| Submission date | Summary |
|---|---|
| 6 June 2025 | OTML submitted an environment permit amendment application to CEPA. The application of proposed work covered the activities associated with the project. |
| 6 June 2025 | OTML submitted the EIR for the project. |
| 30 June 2026 | Submission of ESIA. |

### 3.1.3 Key regulatory and institutional roles

Primary agencies involved in the regulation of OTML operations include:

- **CEPA**: the lead regulatory agency responsible for permit issuance, compliance auditing and enforcement under OTEMA. The Managing Director of CEPA is responsible for the overall performance of CEPA. Their role involves ensuring compliance with environmental regulations, overseeing the organisation's operations, and fulfilling its mission to safeguard the environment and conserve natural resources. Additionally, they are responsible for executing government policies and priorities related to environmental protection as mandated by the National Executive Council. The Managing Director of CEPA also chairs the Environment Council.
- **Mineral Resource Authority**: the government agency responsible for regulating the mining (mineral) industry through managing and administering all exploration and mining tenements, enforcing compliance with mining laws and regulations, negotiating mining development contracts, and facilitating communication between stakeholders.
- **Environment Council**: established under Section 17 of the Environment Act, the Environment Council is responsible for:
  - Carrying into effect the objects of the Environment Act.
  - Managing, developing and protecting the nation’s environment in such a way as to conserve, restore and enhance the environment for present and future generations.
  - Maximising Papua New Guinean participation in the wise use and development of the environment.

## 3.2 OTHER LEGISLATION AND REGULATIONS

A wide range of Papua New Guinean legislation and regulations is relevant to the project. Table 3.4 summarises other acts and regulations relevant to the ESIA and project implementation.

**Table 3.4 Other environmental legislation and regulations**

| Legislation and regulations | Description and applicability |
|---|---|
| **Legislation** | |
| *Climate Change (Management) Act 2015; subsequently amended in 2021 and 2023* | This Act provides the legal framework for climate adaptation and mitigation in PNG, including implementing international obligations and establishing a national authority. It is applicable to the greenhouse gas assessment and climate change risk assessment, including evaluation of the projects' resilience to climate hazards. |
| *Conservation and Environment Protection Authority Act 2014* | This Act establishes CEPA as PNG's national environmental regulator. CEPA plays a central role in reviewing the ESIA, issuing the amended environment permit, and overseeing compliance under the OTEMA. |
| *Fauna (Protection and Control) Act 1966* | This Act provides for the protection of native wildlife. It is relevant to the terrestrial biodiversity and aquatic ecology studies, which assess potential impacts to fauna species and their habitats. |
| *Forestry Act 1991* | This Act governs forest resource management, including clearing of forested land. Given the TSF construction involves removal of forest cover or vegetation in areas outside the existing mine lease, forestry permits or coordination may be required. |
| *Industrial Safety, Health and Welfare Act 1961* | This Act governs occupational safety and health standards in industrial settings. It informs the air quality, noise, and workplace safety components of the ESIA, particularly during the project's construction and operation. |
| *Land Act 1996* | The Land Act regulates land tenure, leasing, and compulsory acquisition, particularly for State and customary land. It is relevant for assessing land access, community relocation, and compensation obligations associated with the TSF and supporting infrastructure (e.g., roads, pipeline). |
| *Local-level Governments Administration Act 1997* | This Act supports participatory governance through ward and district development planning. It is relevant to the stakeholder engagement process, particularly where project-affected communities fall under local-level jurisdiction. |
| *Mining (Safety) Act 1977 and Regulation.* | This Act governs the occupational health and safety requirements for mining operations in PNG. It is relevant to the assessment of health, safety, dam design standards, and risk management associated with TSF operations. |
| *Mining Act 1992* | OTML will require tenements issued under the *Mining Act 1992* for the project.<br>Additionally, OTEMA does not provide for resettlement. The *Mining Act 1992* provides national benchmarks for land access, compensation, and resettlement. It is referenced for good practice in developing the approach to resettlement, high-level work program for resettlement planning, and managing displacement impacts. |
| *National Cultural Property (Preservation) Act 1965* | This Act protects archaeological and cultural heritage sites of national significance. It is applicable to the archaeology and cultural heritage technical study, which identifies and assesses the potential for disturbance to heritage sites within the TSF footprint. |
| *Protected Areas Act 2024* | This Act guides the management and conservation of protected areas and includes provisions for biodiversity offsets. |
| *Road Maintenance Act 1971* | This Act provides for the classification and maintenance of public roads. It is applicable where the project involves upgrades to existing gazetted roads, requiring coordination with public works authorities. |
| *Road Traffic Act 2014* | This Act regulates vehicle operations, traffic safety, and load limits on public roads. It applies to the transport of materials, equipment, and workforce during project construction, particularly where roads pass through or near communities. |
| **Regulations** | |
| *Environment (Water Quality Criteria) Regulation 2002* | This regulation sets enforceable ambient water quality standards for effluent discharges into PNG's freshwater and marine environments. It informs the geochemistry, surface water quality, aquatic ecology, and ecosystem services assessments for the project but is not legally enforceable under OTEMA. |
| *Public Health Act & Public Health (Drinking Water) Regulation 1984* | These instruments define standards for safe drinking water and sanitation. They support the water quality, human health, and community impact assessments, especially regarding potential effects on water sources relied upon by nearby communities. |

## 3.3 INTERNATIONAL ENVIRONMENTAL AGREEMENTS

Table 3.5 summarises international agreements to which PNG is a signatory and that are relevant to the project. These agreements inform the management of environmental and social impacts where they have been enacted through national legislation. Their principles also guide good practice, particularly where aligned with national laws and regulatory expectations.

**Table 3.5 International environmental agreements to which PNG is a signatory**

| Agreements | Description and relevance |
|---|---|
| *Convention on Biological Diversity (1993)* | Supports the protection of biodiversity, ecosystems, and species. Relevant to the potential impacts of the project on terrestrial and aquatic biodiversity and aligns with mitigation hierarchy and offset planning. Also relevant to ecosystem services assessment. |
| *Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)* | Regulates the trade and handling of endangered species. Relevant if biodiversity surveys identify any listed species in the project area or if specimen collection is required. |
| *Paris Agreement under the UN Framework Convention on Climate Change (2016)* | Commits countries to reducing greenhouse gas emissions and building climate resilience. Relevant to the project's greenhouse gas (GHG) inventory and climate change risk assessment. |
| *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes (1989)* | Governs the movement and disposal of hazardous wastes across borders. While the project will not export waste, the Convention reinforces best practices for hazardous materials and tailings containment. |
| *Waigani Convention (1995)* | A regional version of the Basel Convention for the South Pacific. Reinforces Papua New Guinea's commitment to controlling hazardous waste and preventing regional pollution risks. |
| *Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention, 1972)* | Encourages the protection of sites with outstanding cultural or natural value. Relevant if areas of cultural or natural significance (e.g., sacred sites, unique landscapes) are identified during the cultural heritage assessment. |
| *Ramsar Convention on Wetlands of International Importance (1971)* | Promotes the conservation and sustainable use of wetlands. Relevant if wetlands or riparian zones may be affected by tailings deposition or water discharge from the project. |
| *Convention on the Conservation of Migratory Species (1979)* | Potentially relevant if migratory birds or fish species use habitats affected by the project. |
| *Convention for the Protection of the Natural Resources and Environment of the South Pacific (1986)* | Reinforces PNG's obligations to prevent land-based pollution and coastal degradation, which aligns with tailings containment principles. |
| *International Labour Organization (ILO) Convention 169 on Indigenous and Tribal Peoples (not ratified, but ILO principles inform free, prior and informed consent)* | While PNG is not a signatory, the principle of free, prior and informed consent is still widely applied in social and human rights assessments aligned with the International Finance Corporation (IFC) Performance Standard (PS) 7. Relevant where Indigenous or Community Mine Continuation Agreement (CMCA) communities may be affected. |
| *United Nations Declaration on the Rights of Indigenous Peoples (2007)* | Though not a treaty, PNG supports this declaration. Relevant to human rights and Indigenous engagement obligations in social and cultural assessments. |
| *International Plant Protection Convention (1976)* | Promotes international cooperation to control pests and diseases of plants and plant products. |
| *Vienna Convention for the Protection of the Ozone Layer (the Vienna Convention) (1993)* | Protection of the ozone layer. |
| *Kyoto Protocol to United Nations Framework Convention on Climate Change (1997)* | Has as its objective the reduction of negative changes to the earth's climate with a particular focus on greenhouse gases. Places onus on industrialised countries to reduce emissions. Developing countries such as PNG are exempt from the reduction requirement. |

## 3.4 RELEVANT INTERNATIONAL STANDARDS, GUIDELINES AND CORPORATE POLICIES

This section outlines the international standards, guidelines, and OTML corporate policies considered in the ESIA. These frameworks have guided the scope, method, and content of the assessment, generally aligning the ESIA with international good practice and lender expectations. The standards and policies referenced support the identification and management of environmental, social, and cultural impacts, and complement Papua New Guinean legal requirements by providing additional voluntary reference points for performance, transparency, and stakeholder engagement.

### 3.4.1 International standards and guidelines

Table 3.6 summarises the international standards and guidelines that have informed the scope, method, and content of this ESIA.

**Table 3.6 Relevant international standards and guidelines**

| Standards and guidelines | Description and applicability |
|---|---|
| *The Copper Mark* | The Copper Mark is a voluntary assurance framework that promotes responsible production and sourcing of copper. Copper Mark assists copper producers to demonstrate their commitment to environmental, social, and governance standards. OTML may align with this framework in future. |
| *Performance Standards on Environmental and Social Sustainability (IFC 2012)* | The IFC Performance Standards comprise eight performance standards that detail commitments, roles and responsibilities relating to environmental and social sustainability. The ESIA and the project align with the following standards:<br>• Performance Standard 1 – Assessment and Management of Environmental and Social Risks and Impacts. Provides a framework for the ESIA structure and process.<br>• Performance Standard 3 – Resource Efficiency and Pollution Prevention. Informs the assessment and management of resource use, greenhouse gas emissions, and waste generation associated with the project.<br>• Performance Standard 5 – Land Acquisition and Involuntary Resettlement. Informs development of resettlement framework if/as it may apply to the project.<br>• Performance Standard 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources. Applicable to biodiversity, aquatic ecology, and ecosystem services assessments.<br>• Performance Standard 7 – Indigenous Peoples. Applies to the social impact assessment and human rights impact assessment, as the project-affected communities meet the criteria for Indigenous Peoples under Performance Standard 7, requiring consideration of free, prior and informed consent.<br>• Performance Standard 8 – Cultural heritage. Supports the archaeological and cultural heritage assessment. |
| *Equator Principle IV (Equator Principles Association 2020a)* | The Equator Principles are a risk management framework adopted by financial institutions for determining, assessing, and managing environmental and social risks in projects. Equator Principle IV requires application of IFC Performance Standards, and introduces specific requirements for human rights due diligence, cumulative impacts, and ecosystem services.<br>In accordance with this standard, a climate change risk assessment and human rights impact assessment have been completed for the ESIA. |
| *Global Industry Standard for Tailings Management* (GISTM) (ICMM et al. 2020) | The GISTM establishes global best practices for tailings facility safety, governance, and social responsibility. The standard informs the TSF's design and management planning, and supports this ESIA's focus on meaningful engagement with potentially affected communities, integrated risk assessment, and emergency preparedness. |
| *Voluntary Principles on Security and Human Rights* (Voluntary Principles Association 2000) | The Voluntary Principles on Security and Human Rights provide guidance for extractive companies on maintaining the safety and security of operations in a way that respects human rights. The project's stakeholder and community interface, particularly during construction, considers these principles as part of broader human rights and community safety assessments. |

| Standards and guidelines | Description and applicability |
|---|---|
| *International Council on Mining and Metals (ICMM) Tailings Management Good Practice Guide* (ICMM 2021) | This guide provides practical strategies for the safe and responsible management of tailings storage facilities throughout their lifecycle. The guide complements the GISTM and informs the ESIA's approach to TSF risk management, governance, and closure planning, with reference to ICMM's commitments to transparency and community engagement. |
| *IFC Environmental, Health and Safety (EHS) Guidelines* (2007a) | The EHS Guidelines provide sector-specific and general performance benchmarks for environmental protection, occupational health and safety, and community safety. The ESIA applies the Mining Sector Guidelines and General EHS Guidelines to assess and manage impacts related to dust, noise, effluent discharge, hazardous materials, and worker and public health. |
| *Guiding Principles on Business and Human Rights* (UN 2011) | The UN Guiding Principles on Business and Human Rights outline the corporate responsibility to respect human rights and provide access to remedy for affected people. These principles inform the Human Rights Impact Assessment included in this ESIA, particularly in relation to land access, Indigenous rights, and community consultation. |
| International Association for Impact Assessment Guidance | The International Association for Impact Assessment provides internationally accepted principles and methods for conducting social and environmental impact assessments. This ESIA draws on the following guides to structure the social characterisation, identify potential social risks, and develop appropriate mitigation and monitoring measures:<br>• International Principles for Social Impact Assessment (Vanclay 2003).<br>• Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects (Vanclay et al. 2015). |

### 3.4.2 Corporate policies and standards

OTML is committed to responsible environmental management and supporting sustainable livelihoods for its communities and workforce. This includes safeguarding the health, safety, and security of the communities in which it operates, as well as the wellbeing of its employees.

This commitment is put into practice through OTML's integrated management system, which includes a suite of systems, standards, processes and procedures covering all areas of the business, including mining operations, environmental sustainability, community relations, occupational health and safety, finance, people management and security. OTML's integrated management system is compliant with all legislative requirements, is regularly reviewed for currency, and contains key performance indicators that are monitored to track compliance.

Contractors and subcontractors engaged for the project will be required to comply with OTML policies and standards.

## 3.5 STANDARDS AND GUIDELINES ADOPTED FOR THE PROJECT

This section outlines the technical and environmental guidelines adopted to inform the assessment of specific environmental aspects of the project. These guidelines have been applied to the characterisation and impact assessment where Papua New Guinean legislation does not prescribe detailed criteria, or where additional benchmarks are required to reflect good international practice.

### 3.5.1 Air quality

The State of PNG's environment regulations do not specify air quality criteria. The air quality assessment has adopted guidance and goals from the following sources:

- *World Health Organisation Air Quality Guidelines* (WHO 2021b).
- *Institute of Air Quality Management dust management guideline* (IAQM 2024).
- *IFC General Environmental, Health, and Safety Guidelines* (IFC 2007a).

- *Australian National Pollutant Inventory Emissions Estimation Technique Manuals* (DSEWPC 2012).
- New South Wales Environmental Protection Authority (NSW EPA 2022) *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*.
- United States Environmental Protection Agency (US EPA*) National Ambient Air Quality Standards* (NAAQS 2024).

### 3.5.2 Noise and vibration

The State of PNG's environment regulations do not specify noise level criteria. As a result, the noise assessment has adopted guidance and goals from the following sources:

- IFC General Environmental, Health, and Safety (EHS) *Guidelines: Environmental Noise Management* (IFC 2007a).
- Australian and New Zealand Environment Conservation Council's (ANZECC) *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (1990).
- New South Wales Department of Environment, Climate Change and Water *NSW Road Noise Policy* (2011).

### 3.5.3 Surface water and freshwater aquatic ecology

Discharges to water in PNG are governed by the Environment Act, through the conditions in an environment permit. These include compliance with legally enforceable water quality standards at a specified downstream compliance point. Schedule 1 of the Environment (Water Quality Criteria) Regulation 2002 contains these legally enforceable water quality standards for fresh and marine receiving waters; these have been considered despite not applying under OTEMA. Environment permits also contain conditions for the abstraction of surface water.

In addition to PNG water quality standards, the ESIA considers the following standards and guidelines for ambient water quality:

- Guidelines for Protection of Freshwater Aquatic Life Detailed in the Environmental Code of Practice for PNG's Mining Industry (OEC 2000).
- IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (IFC 2012).
- IFC General Environmental, Health, and Safety (EHS) Guidelines: Wastewater and Ambient Water Quality (IFC 2007a).
- Australia and New Zealand Environment and Conservation Council and Agriculture and Resource *Management Council of Australia and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ 2000).
- Australian and New Zealand *Guidelines for fresh and marine water quality* (updated) (ANZG 2018).

While there are no specific PNG guidelines for the discharge of sewage effluent the environment permit may stipulate water quality criteria for the discharge of treated sewage effluent, and the IFC EHS Guidelines (IFC 2007) provide guidance for the discharge of process wastewater, sewage and stormwater to the environment.

The ESIA considers the following standards and guidelines for drinking water quality:

- *PNG Public Health (Drinking Water) Regulation, Schedule 1*, 1984 (PNG 1984).
- *Water quality criteria for raw drinking water. Environmental Code of Practice for the Mining Industry* (OEC 2000).
- World Health Organisation (WHO) *Guidelines for Drinking Water Quality*, *4th edition* (WHO 2022).

### 3.5.4 Terrestrial ecology

The terrestrial ecology assessments were carried out with consideration of:

- *IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources* (IFC 2012).
- *The International Union for Conservation of Nature Red List of Threatened Species* (IUCN 2025), which assesses the conservation status of species on a global scale.
- Papua New Guinea *Fauna (Protection and Control) Act 1966*, which lists some fauna as protected or restricted for trade.

### 3.5.5 Socio-economic

The socio-economic impact assessment considered the following sources:

- *Social impact assessment: Guidance for assessing and managing the social impacts of projects* (Vanclay et al. 2015).
- *IFC Performance Standards* (IFC 2012).
- *OTML's policies and standards*.

### 3.5.6 Mine closure

The Ok Tedi Closure and Decommissioning Code 2001 (the Code) is included as a schedule to Ninth Supplemental Agreement to the Ok Tedi Agreement and provides a statutory framework for closure of the Ok Tedi Mine. The Code requires OTML to update the mine closure plan every two years. In addition, the Mining Project Rehabilitation and Closure Guidelines Papua New Guinea (IGF 2019) provide a guidance framework for mine closure planning in PNG.

A conceptual TSF closure and rehabilitation plan has been prepared considering the requirements of the Code and is included as Attachment 3 to this ESIA.

### 3.5.7 Natural hazards and major incidents

Under the Environmental Code of Practice for the Mining Industry (OEC 2000), it is recommended that proponents develop contingency plans to manage risks of unexpected incidents, such as natural disaster and equipment failures. The Equator Principles IV (Equator Principles Association 2020a) also requires the assessment of climate change risks for certain projects, including mining developments. PNG legislation does not prescribe specific requirements for natural hazard identification or risk assessment for mining developments. However, several provisions are relevant to managing natural hazards and unplanned events:

- OTEMA. Section 8 requires that 'the permit holder shall not carry out an activity, in relation to the Ok Tedi Mine, that causes or is likely to cause environmental harm unless the permit holder takes all reasonable and practicable measures to prevent or minimise the harm'.
- *Mining Act 1992*. Section 43(1) requires proposals for mining leases (and special mining leases) to include adequate provisions for environmental protection.
- *Environmental Code of Practice for the Mining Industry* (OEC 2000). Requires contingency plans to manage risks from unplanned events, including natural disasters and equipment failures.
- *Natural Disaster Risk Reduction Framework 2017-2030*. Provides policy and operational frameworks for disaster risk prevention and reduction, including climate-induced risks (CFE-DM 2025a).

The IFC General EHS Guidelines (2007a) and mining sector EHS Guidelines (2007b) provide international benchmarks for managing natural hazards, accidents and unplanned events.

Chapter 13 of this ESIA provides a risk-based assessment of unplanned events (natural hazards and unplanned events) and OTML's in-principle controls to manage them.

### 3.5.8 Other key standards

Design of the TSF has also considered the following standards, regulatory guidelines and industry guidelines (KCB 2024a):

- Australian National Committee on Large Dams:
  - *Design of Dams and Appurtenant Structures for Earthquake.*
  - *Guidelines on Tailings Dams – Planning, Design, Construction, Operation and Closure (Revision 1)*.
  - *Guidelines on Risk Assessment*.
- International Commission on Large Dams:
  - *Bulletin 139: Improving Tailings Dam Design – Critical Aspects of Management, Design, Operations, and Closure*.
  - *Bulletin 153: Sustainable Design and Post-Closure Performance of Tailings Dams.*
  - *Bulletin 181: Tailings Dam Design – Technology Update.*
  - *Bulletin 194: Tailings Dam Safety*.
- Global Tailings Review:
  - *Global Industry Standard on Tailings Management*.
- ICMM:
  - *Integrated Mine Closure: Good Practice Guide (2nd Edition).*
  - *Tailings Management: Good Practice Guide.*
- Canadian Dam Association:
  - *Dam Safety Guidelines* with 2013 Revision.
  - *Canadian Dam Association Technical Bulletins:*
    - *Hydrotechnical Considerations for Dam Safety.*
    - *Geotechnical Considerations for Dam Safety.*
    - *Seismic Hazard Considerations for Dam Safety.*
    - Surveillance of Dam Facilities.
    - Inundation, Consequences, and Classification for Dam Safety.
    - Application of Dam Safety Guidelines to Mining Dams.
- Federal Emergency Management Agency:
  - Filters for Embankment Dams Best Practices for Design and Construction.
- Papua New Guinea Bureau of Water Resources:
  - Flood Estimation Manual.
  - *Ambient Water Quality Guidelines* in Schedule 1, Environment (Water Quality Criteria) Regulation No 28 2002, of the Environment Act 2000.
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality:
  - *Australia and New Zealand Environment and Conservation Council and Agricultural and Resource Management Council of Australia and New Zealand water quality guidelines.*