

BHP

2021 BHP Tailings Storage Facility management update

BHP Tailings Taskforce



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Forward-looking statements

This presentation contains forward-looking statements, including statements regarding: trends in commodity prices and currency exchange rates; demand for commodities; production forecasts; plans, strategies and objectives of management; closure or divestment of certain assets, operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and shortages of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

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BHP also holds interests in assets that are owned as a joint venture but not operated by BHP (referred to in this release as 'non-operated joint ventures' or 'non-operated assets'). Our non-operated assets include Antamina, Cerrejón, Samarco, Atlantis, Mad Dog, Bass Strait and North West Shelf. Notwithstanding that this presentation may include production, financial and other information from non-operated assets, non-operated assets are not included in the Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless otherwise stated. References in this presentation to a joint venture are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

Key messages

Our operating context	We are focused on the safety and integrity of tailings storage facilities (TSF) across operations and legacy assets ¹ .
The push for change	BHP is Committed to working with the International Council on Mining and Metals (ICMM) and other organisations to pursue improvements in global tailings management practices including the Global Industry Standard on Tailings Management (GISTM).
BHP's alignment to and implementation of the GISTM	We are taking a proactive approach to ensure we meet all of the requirements that have been set out in the GISTM, many of which we already meet.
Industry opportunities and challenges	We support calls for greater transparency in tailings management disclosure and will work with our stakeholders to promote the application of consistent disclosure that informs better tailings dam stewardship while expanding the capability of the industry.

1. Legacy Assets refers to those BHP-operated assets, or part thereof, located in the Americas that are in the closure phase.



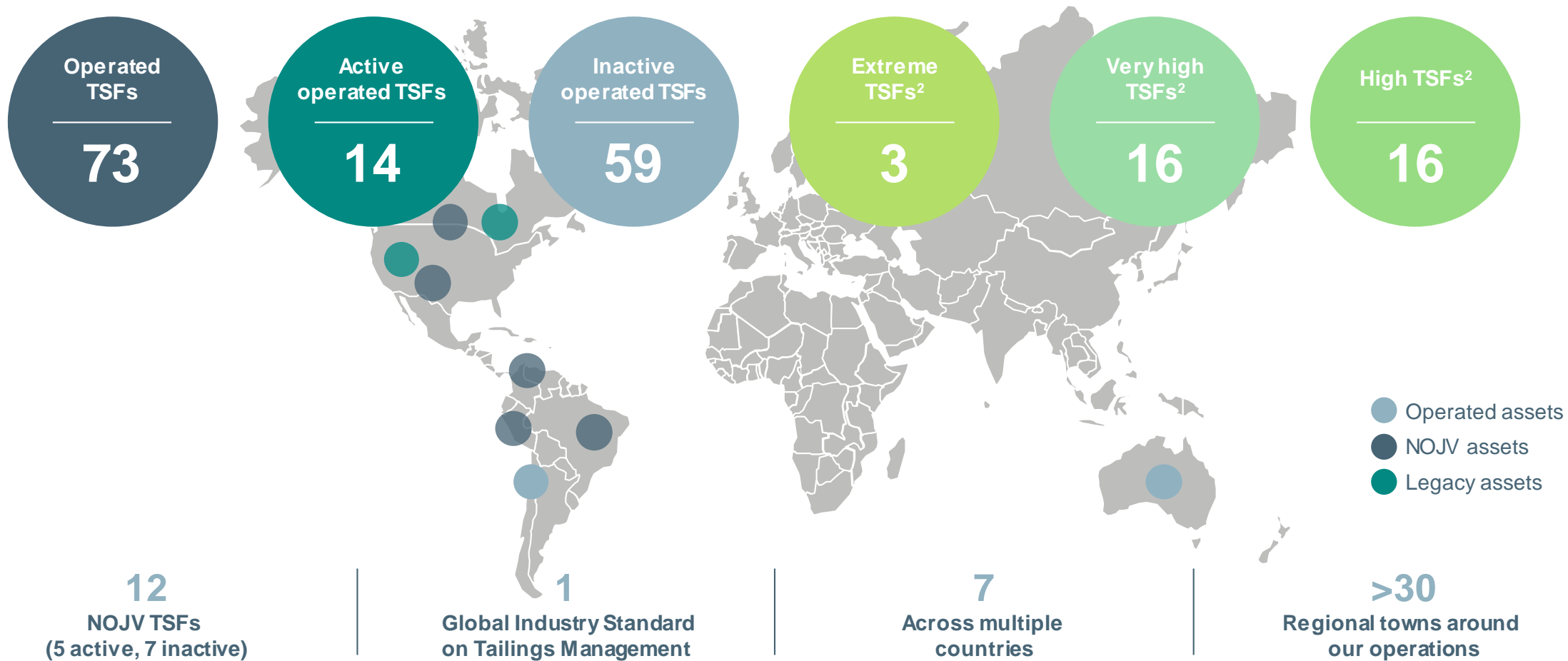
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Part 1: Our operating context



A fundamental approach across our portfolio

We must ensure the integrity of TSFs across our operations and legacy assets¹ to protect our people, the environment and communities in which we operate

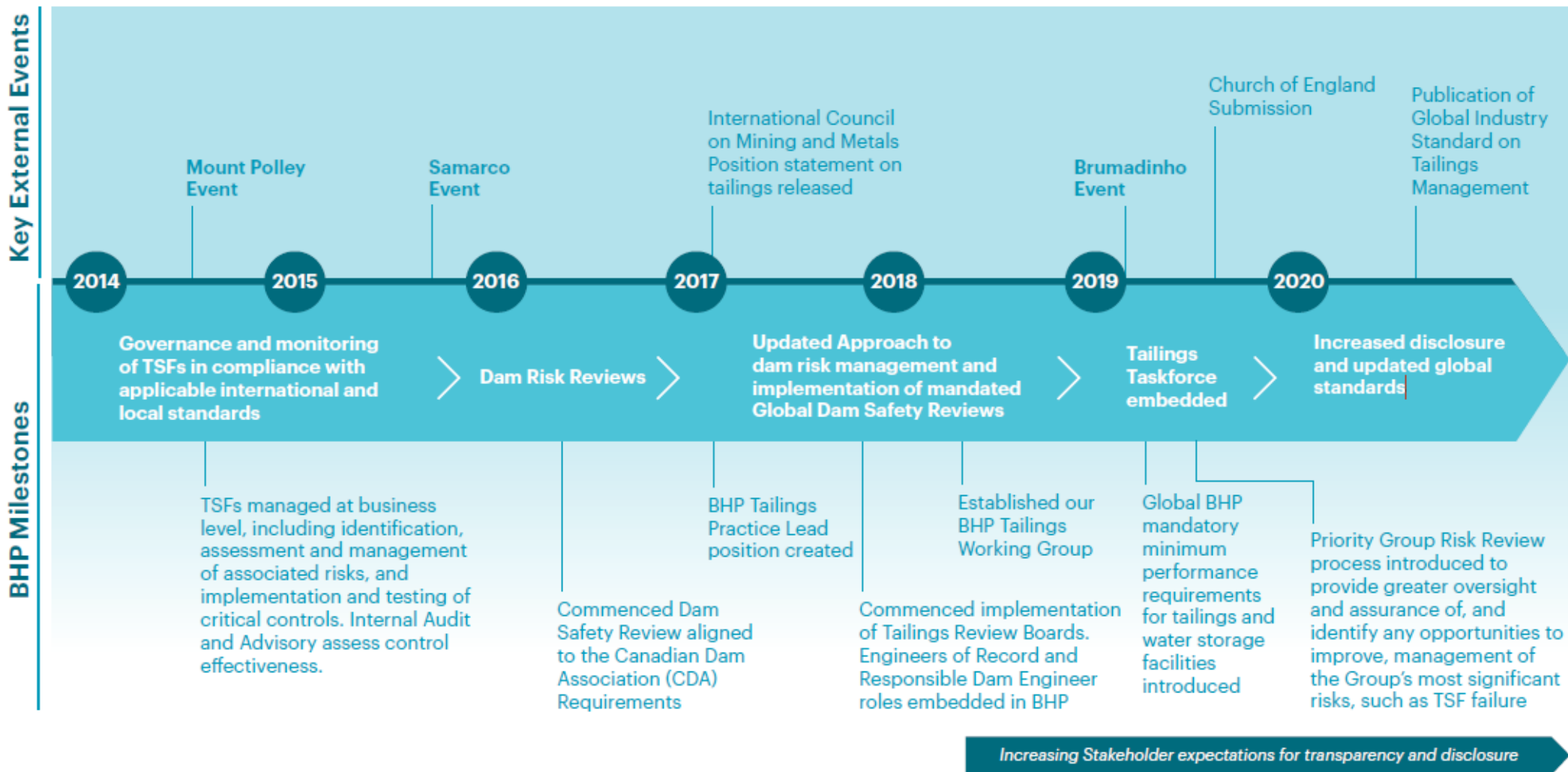


1. Legacy assets refers to those BHP-operated assets, or part thereof, located in the Americas that are in the closure phase.

2. Dam classification or consequence is generally based on the modelled impacts following a dam break study, of the hypothetical most significant failure mode for the dam, regardless of the probability of failure or the controls in place to manage the risk of failure. This data is accurate as of June 2021 and will be undergoing external assurance as part of our Annual Reporting process prior to publication in Sept 2021.

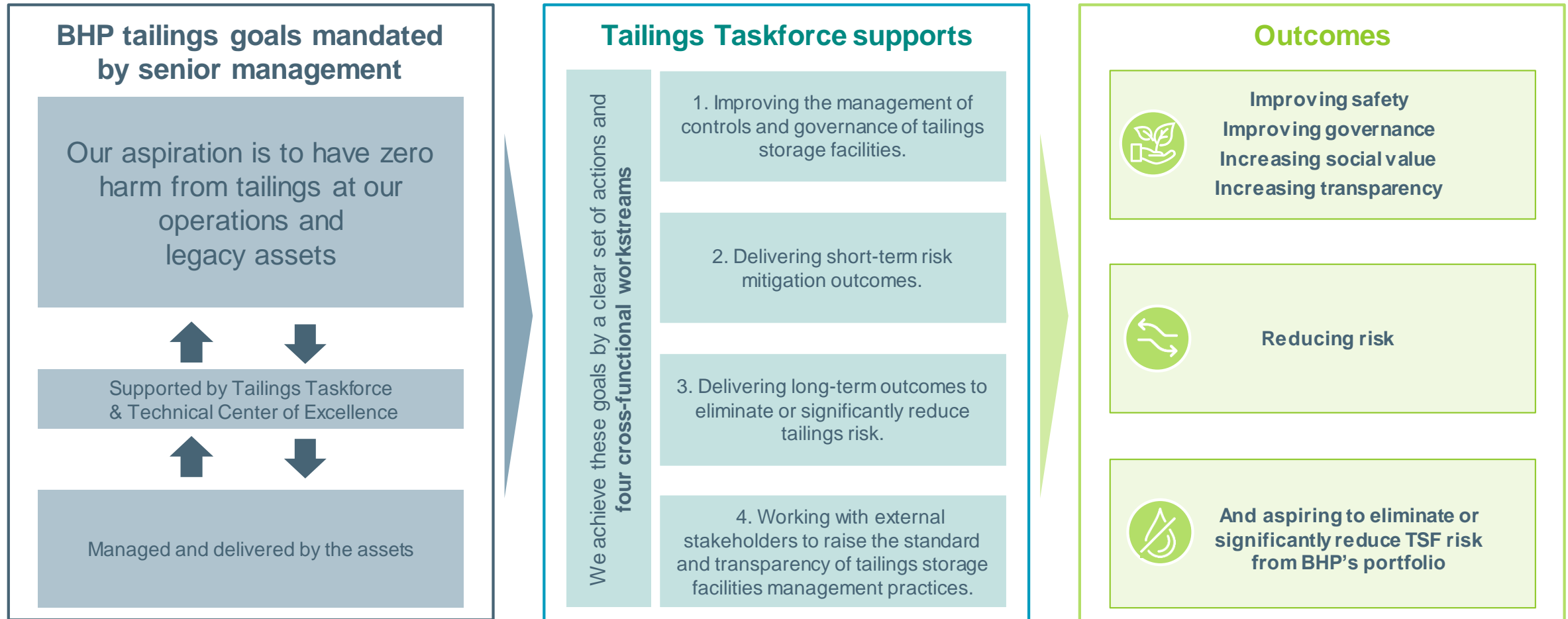
Overview of our journey to date

As a company, we have been specifically addressing TSF failure risk for many years



BHPs Tailings Taskforce

The Tailings Taskforce was brought together in 2019 to support the governance and management of TSFs across our portfolio



BHP supports calls for greater transparency with TSFs

We work with all stakeholders to promote the application of consistent disclosure that informs better TSF stewardship

A panel of experts appointed by the co-conveners (ICMM, Principles for Responsible Investment (**PRI**) and the United Nations Environment Program (**UNEP**)) lead the Global Tailing Review (**GTR**) initiated in March 2019.

BHP contributed to this process through:

- Various Working Groups via the ICMM
- Participation on the ICMM Council and Principle Liaisons Committee
- Rigorous internal reviews of draft documents and feed all our feedback into the consultation process run by the panel of experts

The result of the GTR is the new Global Industry Standard on Tailings Management (GISTM):

- Developed as an international standard for safer tailings management, providing:
 - a framework for safer tailings management, and
 - an ambition to achieve the goal of zero harm to people and the environment
- We are proactively ensuring we meet all of the requirements that have been set out in the standard

“As an industry, we must constantly challenge the standards we set for safety, to protect our people, the environment and the communities in which we operate. The management of tailings is no exception.

BHP is committed to meet or exceed the requirements of the Global Industry Standard on Tailings Management by the dates outlined by ICMM. With a critical mass of participants within the ICMM, we are able to better define minimum requirements in a common language across the industry and generate the urgency and action required to make a sustained difference.

This global standard will help raise the bar for tailings storage facilities management across the industry and allow us to share learnings with our peers for the safety of people and the environment.”

Mike Henry, BHP CEO 2021

An aerial photograph of a massive open-pit mine. The mine's interior is characterized by numerous terraced levels, creating a series of concentric, bowl-like shapes. A wide, light-colored dirt road winds through the lower levels of the mine. The surrounding landscape is arid, with sparse vegetation and distant mountains visible under a clear sky. The overall color palette is dominated by earthy tones of brown, tan, and grey.

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Part 2: BHP's alignment to and implementation of the GISTM

Approach to TSF risk management at BHP operations¹

Improving the management of controls and governance of TSFs

A multi-dimensional TSF risk management approach:

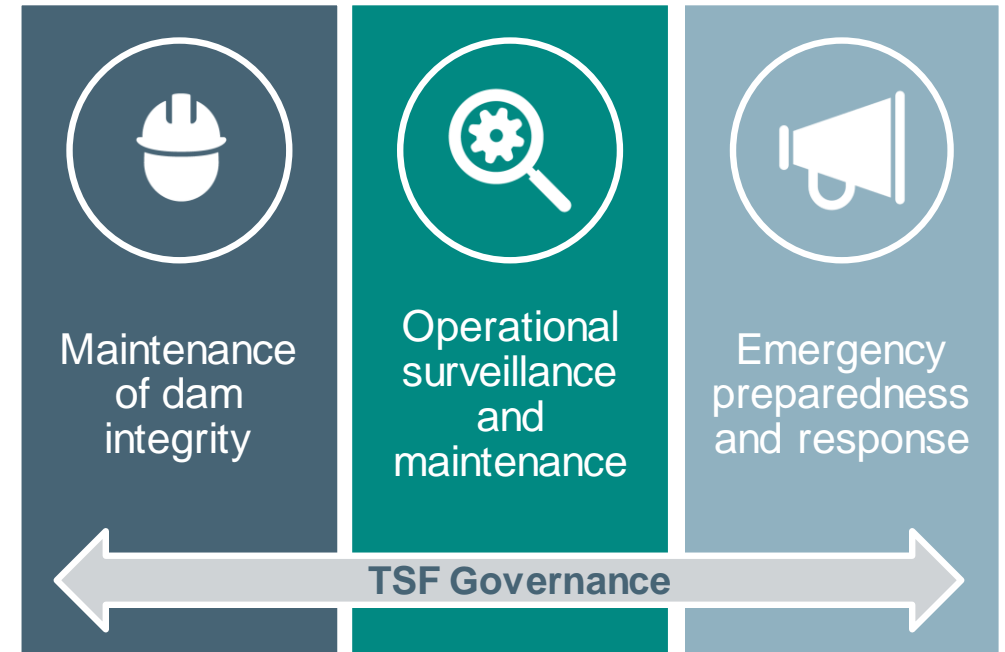
1. Maintenance of dam integrity;
2. Operational Surveillance and Maintenance; and
3. Emergency preparedness and response.

TSF mandatory minimum performance requirements:

- Outlines the applicable processes, including business planning, risk assessments and management of change.
- Requires us to take a risk-based approach and set out key considerations, such as when working with our communities and external stakeholders and building our emergency management plans.

Technical, group level oversight:

- Currently supported by our Resource Engineering Centre of Excellence and our Tailings Taskforce.



Group-level oversight and assurance

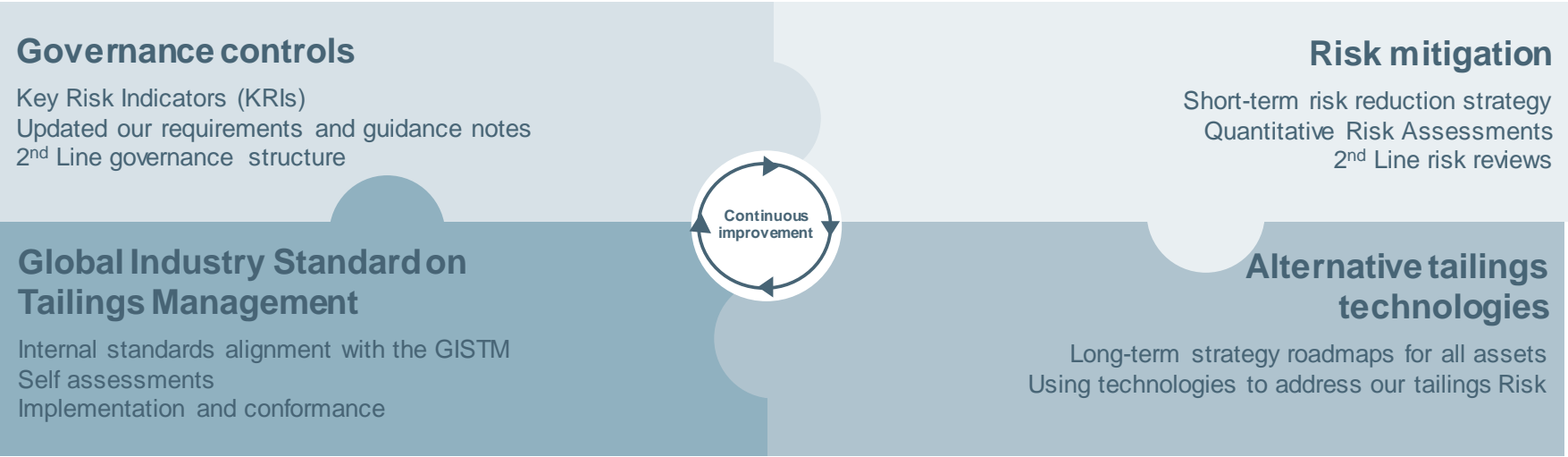
1. This approach applies only to BHP-operated dams with the specific details commensurate with risk.

BHP's TSF strategy

BHP's Tailings Storage Facility Policy Statement

BHP's aspiration is to have zero harm from tailings and we work with others and share progress in an effort to make this a reality.

BHP's TSF Strategy



Ensuring the integrity of TSFs across our operations and legacy assets to protect our people, the environment and communities in which we operate.

↑ Capability

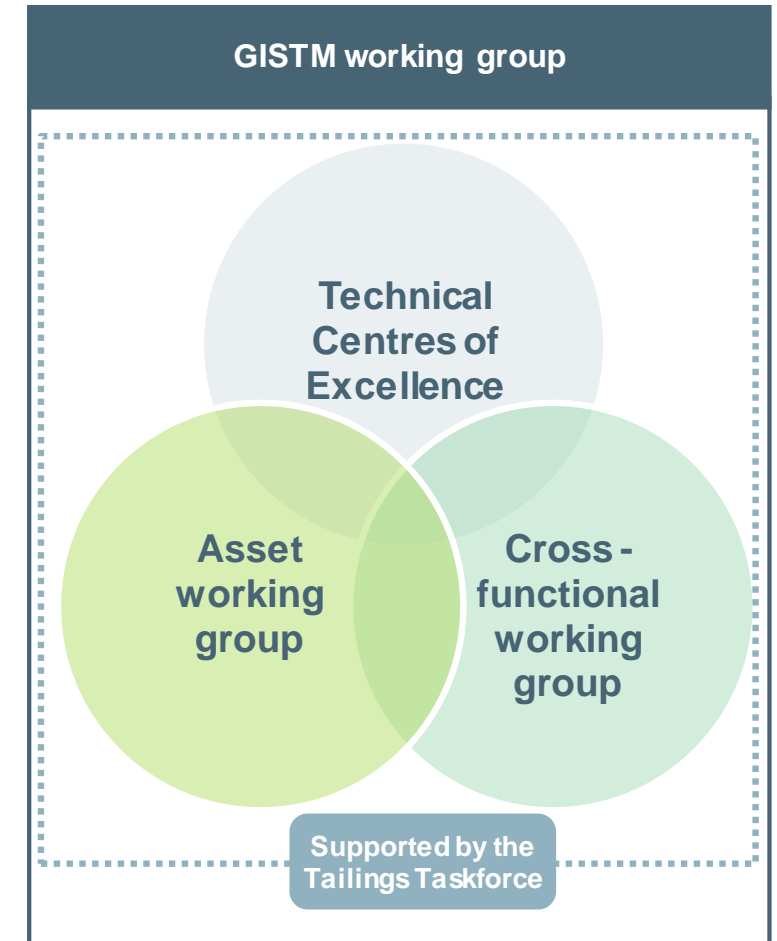
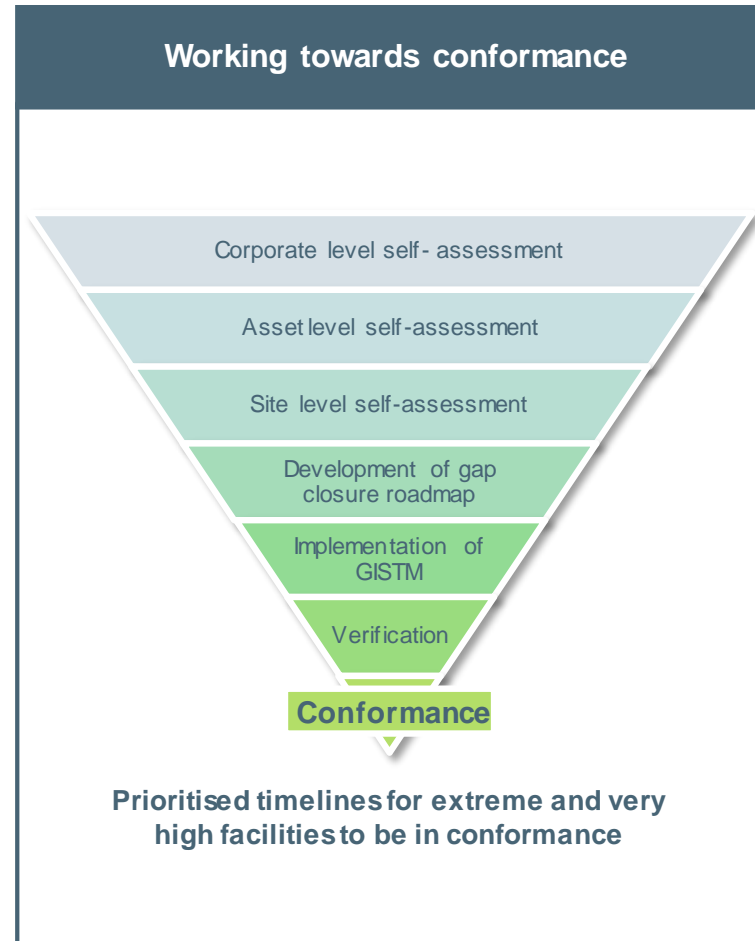
↓ Risk

↑ KRI performance

↑ Social value

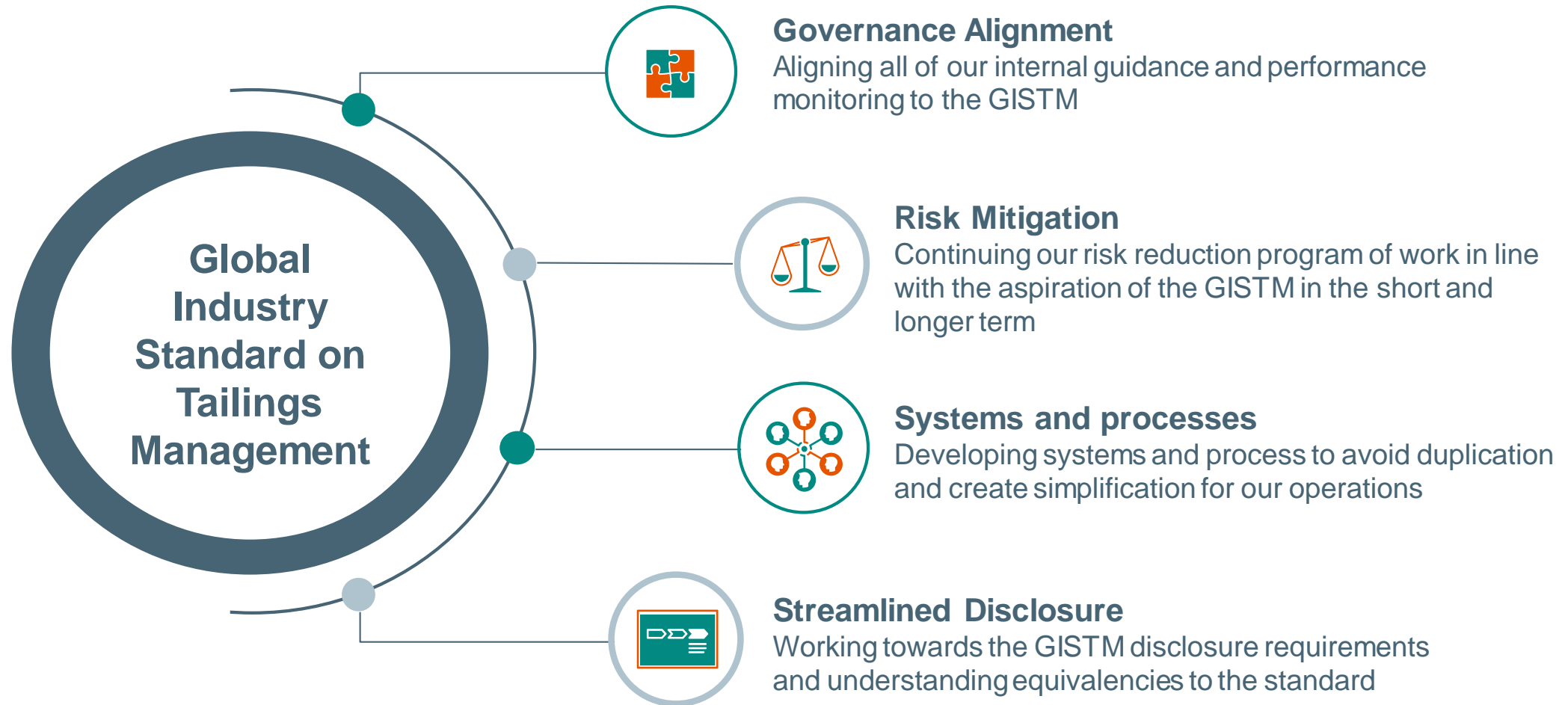
BHP's pathway towards implementation of the GISTM

Setting ourselves up for success for the future implementation of the GISTM



Internal alignment and simplification

We have ensured there is consistency with our governance and management practices and the GISTM



Our corporate governance associated with the GISTM

Example: Principal 8: Establishing policies, systems and accountabilities to support the safety and integrity of the Tailings Facility

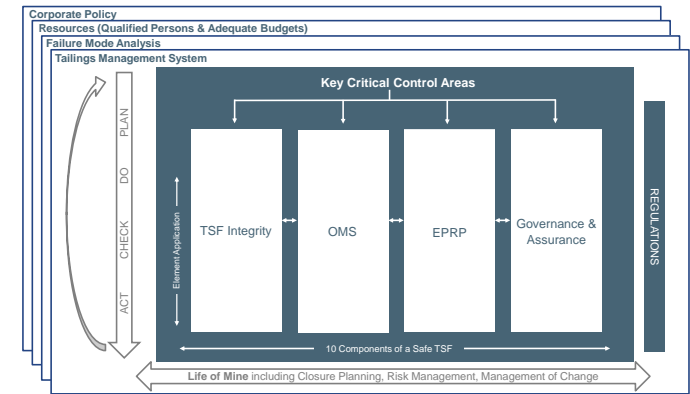
TSF Policy Statement

Requirement 8.1: The *Board of Directors* shall adopt and publish a policy on or commitment to the safe management of *tailings facilities*, to emergency preparedness and response, and to recovery after failure.



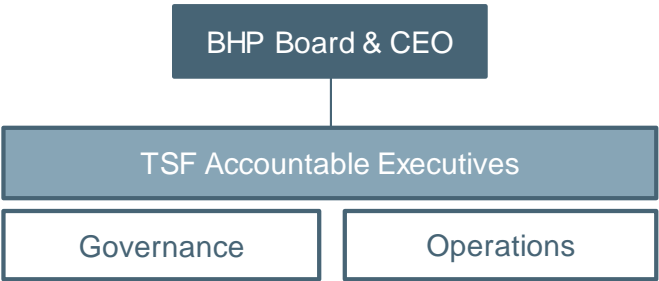
Tailings Management System

Requirement 8.2: Establish a *tailings governance framework* and a performance based *TMS* and ensure that the *ESMS* and other critical systems encompass relevant aspects of the *tailings facility* management.



Accountable Executives

Requirement 8.4: Appoint one or more *Accountable Executives* who is/are directly answerable to the CEO on matters related to this Standard. The *Accountable Executive(s)* shall be accountable for the safety of *tailings facilities* and for avoiding or minimising the social and environmental consequences of a *tailings facility* failure.

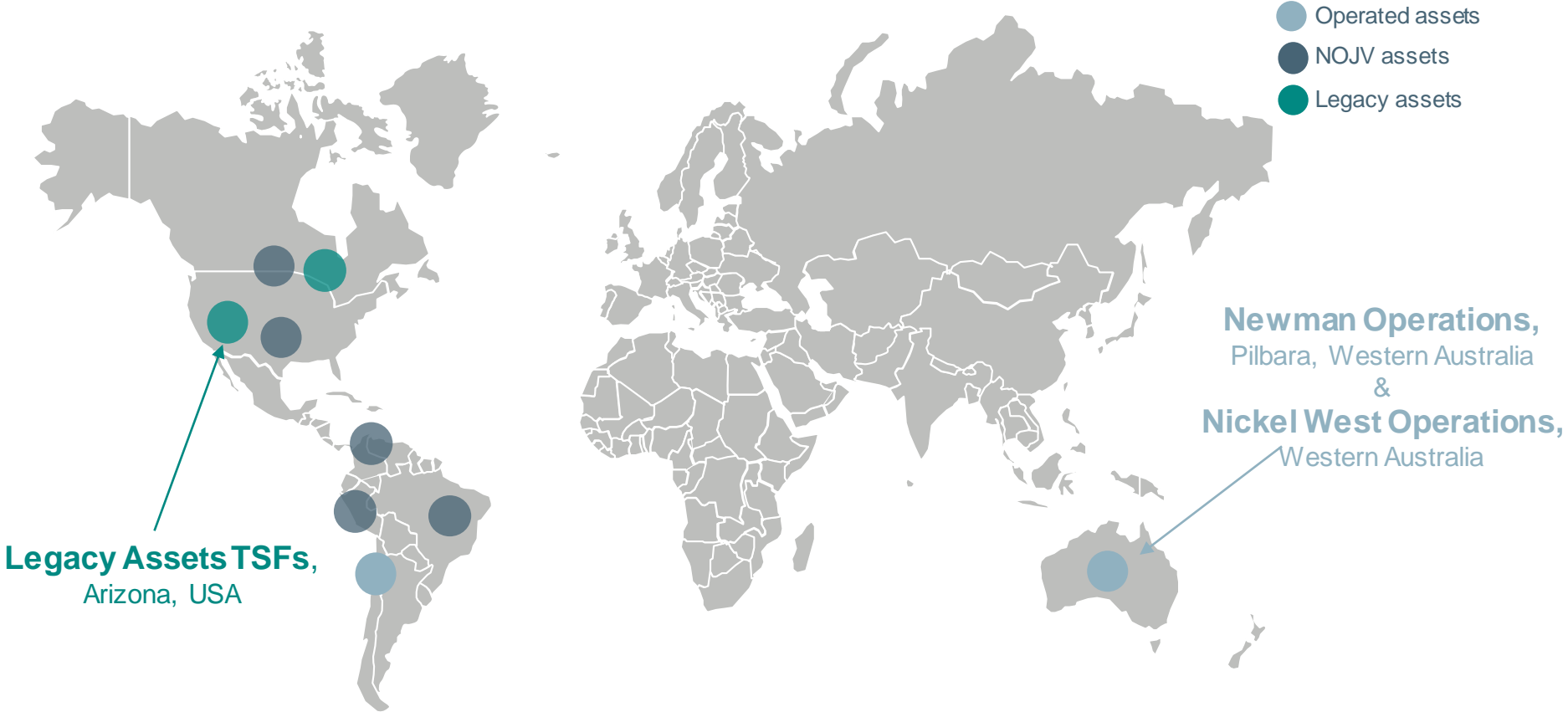


The safety of our people and the communities in which we operate always comes first

Managing our material safety risks is key, including the potential failure of a TSF at our operations

We evaluate all 73 operated TSFs¹ in line with the Canadian Dam Association (CDA) Safety Guidelines to assess the potential failure consequence at each.

Three examples of our work to reduce the risk of safety impacts to our people and nearby communities are at our Newman Operations and Nickel West operations in Western Australia, and the Miami Avenue Tailings Project in Miami, Arizona.



1. This includes our active facilities, closed facilities and acquired legacy facilities that BHP operates.

We were already on a journey towards rapid risk reduction

Case Study 1: Miami Ave TSF in Arizona, USA

FY20 Status

The Miami Avenue Tailings Project involves the relocation of legacy tailings from historic underground copper mining activities. Located in Miami, Arizona, BHP's Miami Unit mine was acquired by BHP in the mid-1990s and the Miami Ave TSF has been inactive for over 90 years. This facility contains about 360,000 m³ of tailings, deposited between 1920 and 1921. While stable for many years, this facility has a CDA rating of 'Extreme' due to its proximity to the former copper boom town of Miami.



BHP has worked closely with the local community and external stakeholders to ensure a safe and transparent removals process.



Miami Ave TSF



Our risk framework requires us to review risks and controls periodically. In January 2019, we reassessed the risk of a TSF failure at Miami Avenue and decided to eliminate the risk by relocating the tailings to a nearby depression on the interior of the mine site. This in turn will remove the risk of safety impacts to people in the potential impact zone. Logistics planning was completed in FY2020 and tailings relocation commenced soon after.

FY21 Current State

All tailings have been removed from the Miami Avenue TSF Facility into the nearby depression on the interior of the mine site.

This has eliminated the potential for a catastrophic failure of the TSF.



Former location of Miami Ave TSF

We were already on a journey towards rapid risk reduction

Case Study 2: Newman, Western Australia

FY20 Status

At Newman Operations (formerly Mount Whaleback) in the Pilbara region of Western Australia, operations have relied upon a TSF since the mid-1980s. The facility contains about 17,500,000 m³ of tailings. Early last year, we began a program of work to improve safety and reduce the potential impacts of a TSF failure at the operation. The most significant part of this program was the construction of a barrier between the TSF and the main processing hub.

The work was completed in two stages: the first phase reduced the facility's CDA classification from 'Extreme' to 'Very High' (June 2019), and the second phase reduced the CDA classification further to 'High' (June 2020). A continued program of work around improvement of TSF stewardship remains a priority to us and is designed to support further improvements to tailings safety management at the facility.

FY21 Current State

Completed in FY21, the barrier wall has reduced the CDA classification from Extreme to High.

"Our pathway to zero risk mindset has raised the bar in our approach to safety at Newman Operations" - Newman Operations General Manager, 2020



Newman barrier wall

We were already on a journey towards rapid risk reduction

Case Study 3: Nickel West, Western Australia

Previous Status

At the Leinster Nickel West Operation in Western Australia, the Leinster TSF 2/3 has been in operation since 1992. Since 2017, work has been undertaken to improve safety and reduce the potential impacts of a TSF failure at the operation. As part of our ongoing risk reduction program, Nickel West has adopted an approach to reducing the likelihood and severity of a failure through the construction of waste rock buttresses along the perimeter embankments of the TSF. Previously this TSF was assigned a Very High consequence classification under CDA however these risk reduction measures have since allowed the TSF to be re-classified as Significant.

By utilizing waste rock that was destined for nearby mine waste dumps, the likelihood and severity of failure has been reduced.

FY21 Current State

Additional buttressing completed in FY21 has further reduced the likelihood of a failure and will ensure the Factors of Safety are maintained for the Life of Asset



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Part 3: Industry opportunities and challenges






Increasing capability across the industry

Future Tails Partnership

	5 year partnership	Investing A\$2m each
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These funds will contribute to the people, technology and practices that will support our industry tailings/waste management facilities in the future.

Building talent and capability 	by	<ul style="list-style-type: none"> Delivering four leading-edge training programmes for operators, engineers, senior technical personnel and company executives Micro-credentials to encourage credit towards further post-certificate training and Masters courses.
New industry research 	by	<ul style="list-style-type: none"> UWA supporting new research Up to 4 new PhD research topics funded and supported by a dedicated research team.
Leading practice guide 	by	<ul style="list-style-type: none"> Publications summarising state-of-the-art tailings analysis, design, operation and management Provides guidance on practical implementation of this knowledge and experience.



Escondida

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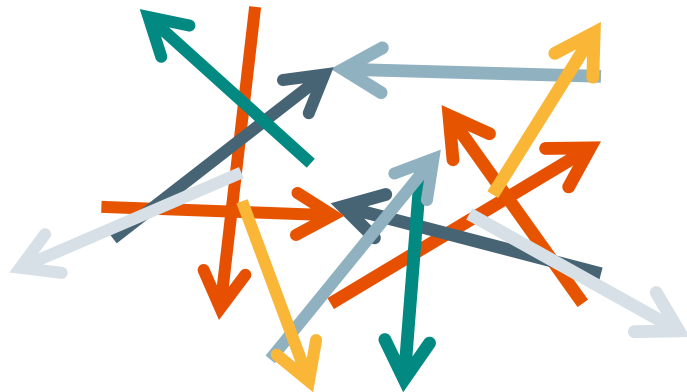
Creating a streamlined disclosure strategy

There is a strong desire to simplify requests related to disclosure

We are committed to improving the transparency of information about TSFs and are working with the ICMM and other relevant organisations to pursue improvements in global tailings management practices.

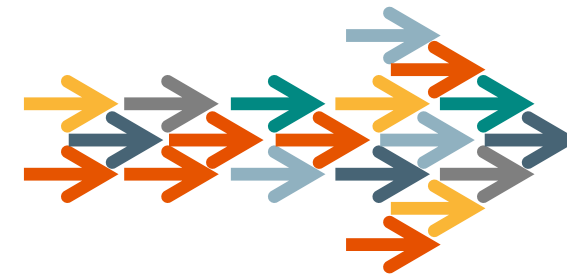
Current state: Ad Hoc Information Requests

- Currently disclosure efforts are driven predominantly by Ad Hoc internal and external requests
- Each type of disclosure has its own timeline, granularity and scope
- Lack of equivalency or consistent expectations



Future state: Alignment to the GISTM

- Cross-functional alignment and a **common framework** will enable a more streamlined process
- **Mapped equivalency** across frameworks
- **Systematic approach** to approaching new standards and increasing our public disclosure in alignment with the GISTM
- More **effective disclosure** for all stakeholders



Encouraging industry collaboration

Partnerships to focus on addressing priority tailings opportunities to accelerate and de-risk development pathways

- We are committed to working with the mining ecosystem to continue engaging in collaborative programs to pool collective knowledge, experience and resources within the industry to facilitate the effective de-risking of these technologies.
- We will also continue to seek out unique opportunities to engage with innovative thinkers on global problems.

“BHP’s Industrial Collaboration”

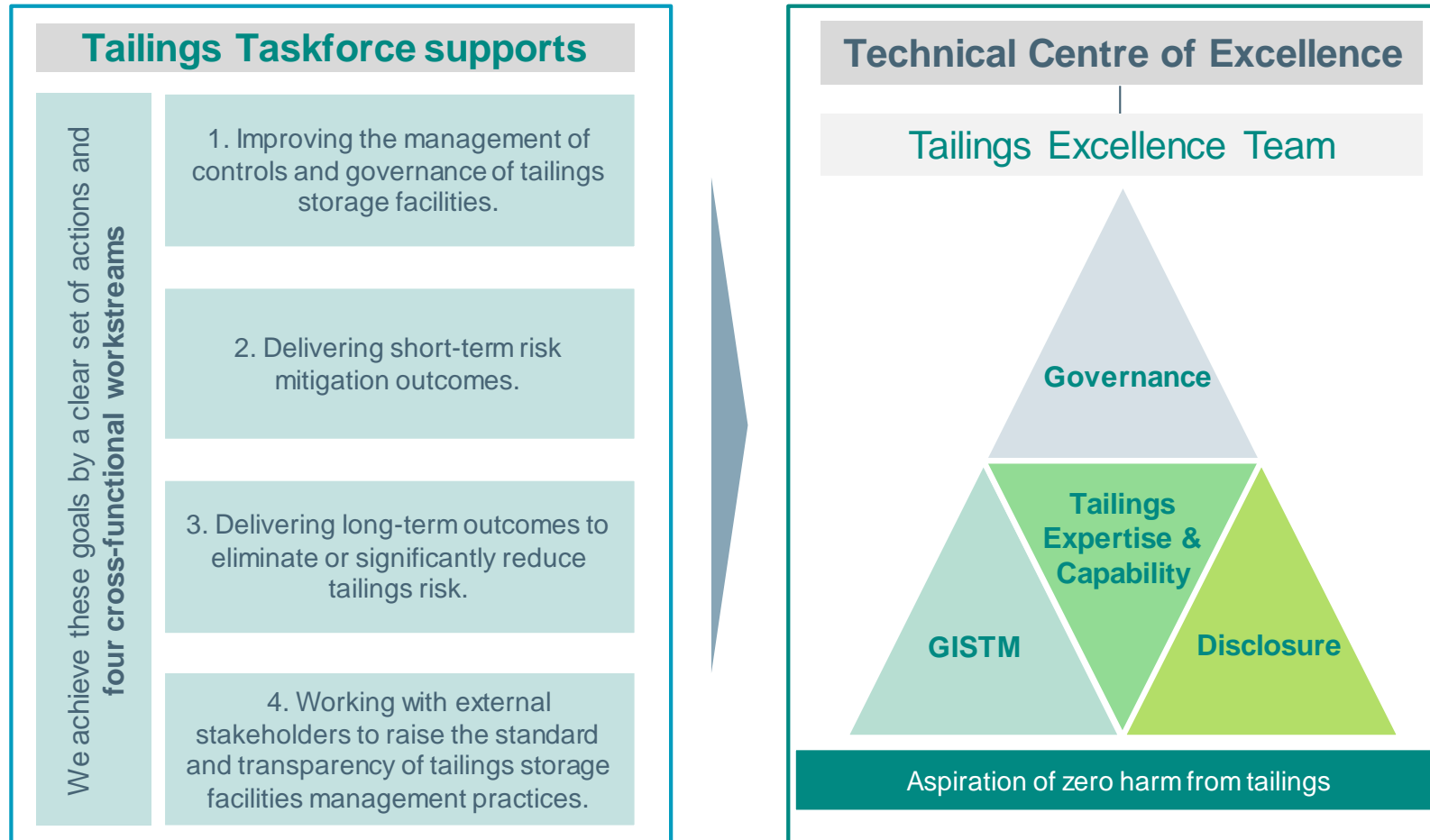
BHP Tailings Challenge

to use a crowdsourcing methodology to find solutions that will access different stakeholders and industries to think out of the box and come up with a technical and commercial solution (s) to the repurposing of tailings



The future of TSF management at BHP

TSF management and GISTM implementation is a priority for BHP and will be further integrated in our business practices



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Tailings dam classification systems

Tailings dam classification informs design and management of dam facilities and assessment of dam risk

BHP primarily classifies dams according to both the classification system of the Canadian Dam Association (CDA) and the Australian National Committee on Large Dams (ANCOLD).

Dams are classified to inform:

- design criteria;
- surveillance programs;
- dam safety review frequency and requirements.

Dam classification or consequence is generally based on the modelled impacts following a dam break study, of the hypothetical most significant failure mode for the dam, regardless of the probability of failure or the controls in place to manage the risk of failure.

Classification is typically assigned by the external Engineer of Record.

Dam classification informs BHP's approach to risk assessment and management of tailings dams.



Olympic Dam

We are working towards alignment with the GISTM

Tailings dam classification systems

Consequence is based on the most significant, possible outcome in any of the categories, regardless of probability

Classification is based on the modelled, hypothetical most significant failure mode without controls – not on the current physical stability of the dam.

CDA consequence category	Potential loss of life	Environmental and cultural values	Infrastructure and economics
EXTREME	More than 100	Major loss... Restoration impossible...	Extreme losses...
VERY HIGH	100 or fewer	Significant loss... Restoration impractical...	Very high economic losses...
HIGH	10 or fewer	Significant loss... Restoration probable...	High economic losses...
SIGNIFICANT	Unspecified	No significant loss...	Loss to recreational facilities...
LOW	0	No long term loss...	Low economic loss...

We are working towards alignment with the GISTM

Source: Canadian Dam Association Dam Safety Guidelines 2007 (2013 Edition) and Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams (2014). The table is an extract of the CDA Dam consequence categories and criteria.

2021 BHP TSF management update

22 June 2021