ASEAN Ports and Logistic 2024 Exhibition and conference

The cornerstone of Global Economy and Supply Chain Networks

Hosted by Johor Port Authority

Presenter: Capt. Zakhir Khan from Bintulu Port Authority, Malaysia

2^{4th} Oct 2024 at DoubleTree by Hilton Johor Baharu, Johor, Malaysia

Title: Port Operation Sustainability-Enhancing Service Levels for Bulk Alumina Oxide Handling and Containerization, Leading to a Reduced Carbon Footprint for End Products within the Transport Ecosystem

1st Conventional Method Journey from 2011 to 2014

Conventional Method – Using ship's cranes, hoppers, grabs, and tankers
From Conventional Method shifted to State of art automation technology.

Conventional Method bottom lines:

- Type of equipment: road tankers, hopper, grabs
- Outcome: took 10 days to unload 30,000 MT Aluminum oxide, ship demurrage charges at berth inefficiency, spillage 3.5%
- Average Handling rate:125 MT/Hr

Transformation journey to reduce carbon footprint from 2014 to 2017 to nonconventional method

Total designing stages until commence operation took 3 years journey

To reduced CO2 emission for Al2O3 cargo handling operation

Introduce Pneumatic Ship unloader using green electric driven energy(hydropower)

Max handling rate: 300 MT/hr X 3 unit = 900 MT/hr

Build chain conveyor belt on the wharf for the length 1.9 KM

Extend the conveyor belt using enclosed pipe conveyor belt 1.6 KM(free dust) connected to the processing plant

Max design efficiency CO2 reduction transformation from 10 days reduced to 1.5 days

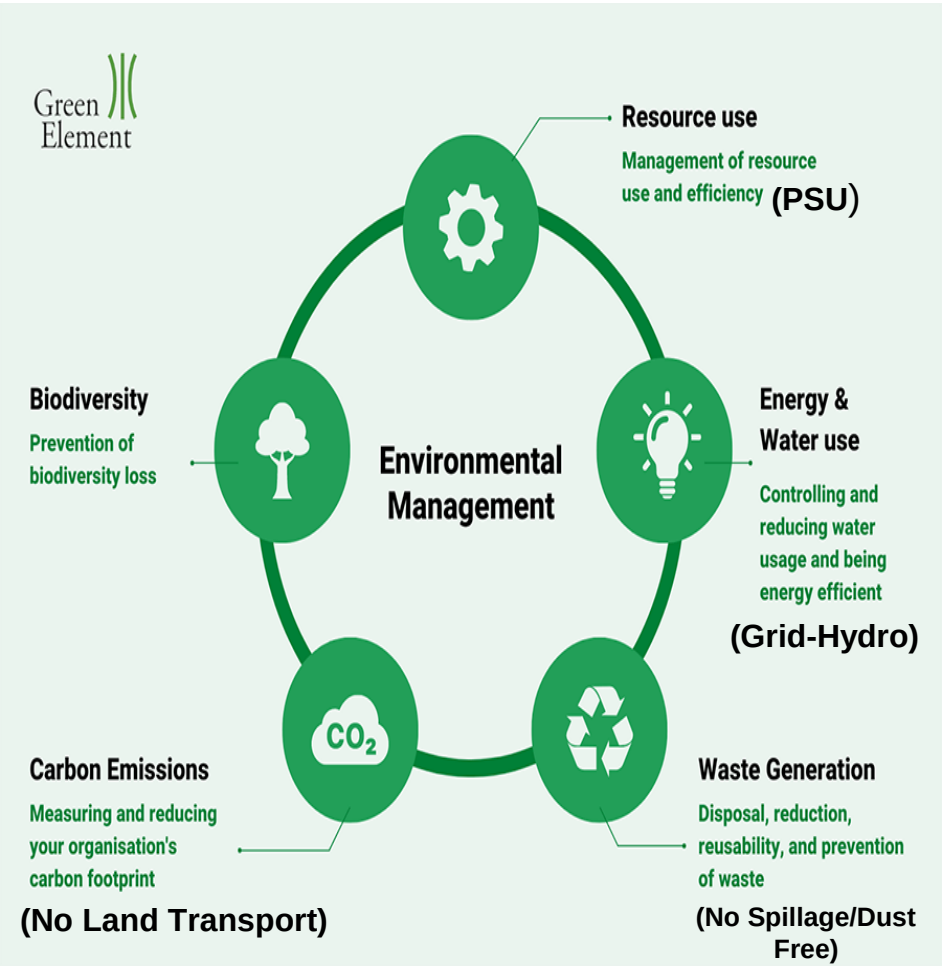
Non Convention Method
Pneumatic Ship Unloader (PSU) – State of the Art Automation Technology

Pneumatic Ship Unloader (PSU) – 31,500 MT Completion between 60 to 65 hours (WWD)
Discharging by electricity comes from the grid (Primarily Hydro). Berth 200M output is 2.2Million MT per annum.
The technique/technology was pioneered (by Press Metal Bhd) for discharging alumina.

Telescopic Pneumatic Cylinder – By Compressed Air Discharging Alumina

Advantage: Lower cost, Fast unloading, More flexible and Dust free.
Per vessel will be engaged 3 units of PSUs and unloading simultaneously. Achieved Fast turnaround time for each shipment – lesser than 3 days. Eliminating or bringing down to the minimum the vessel demurrage which brings benefit to Port Economics and creating a win win situation for Port.

Transferring from PSU to Pipe Conveyor Belt System



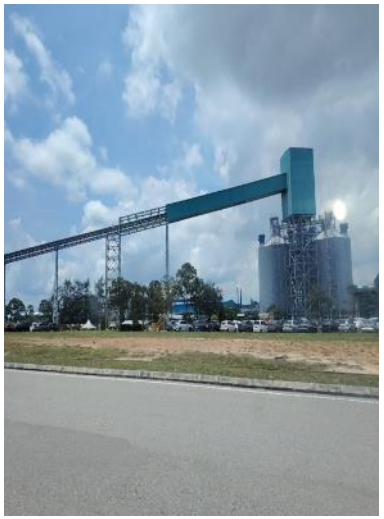
From ship to plant the distances is 3.5KM (To & Flow is total 7.0 Kilometers). Alumina transported via conveyor system by energy, no gas emission and environmentally friendly.

Pipe Conveyor Belt System

Alumina transported from the port to plant by enclosed pipe conveyor belt – Adapted Environmental Management factors in unloading alumina.
First of its kind in the country.

Sustainable Transportation

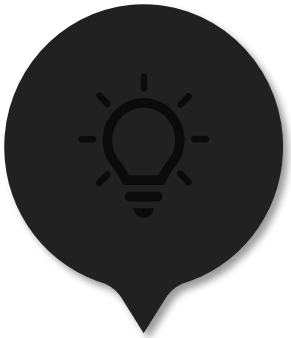



Zero emission, energy efficient and affordable modes of transport – Whole system run under electricity (Zero: Fuels, Air Pollution and Green House Gas Emission).

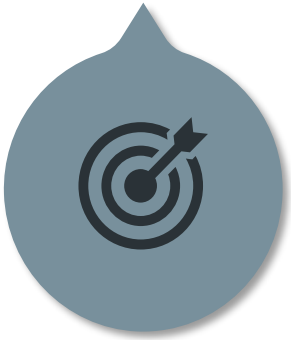
Sustainability and Ecosystem in Transporting Aluminium Finished Products : Targets / KPI

2025



- ✓ Reduce the GHG emissions intensity by 15% from the baseline.

2026

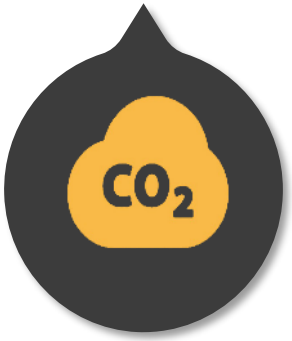


Achieve a 95% waste diversion rate.

2030

- ✓ Reduce the GHG emissions intensity by 30% from the baseline.
- ✓ Reduce the water withdrawal intensity by 10% from the baseline.
- ✓ Achieve zero (0) landfill waste.

2050



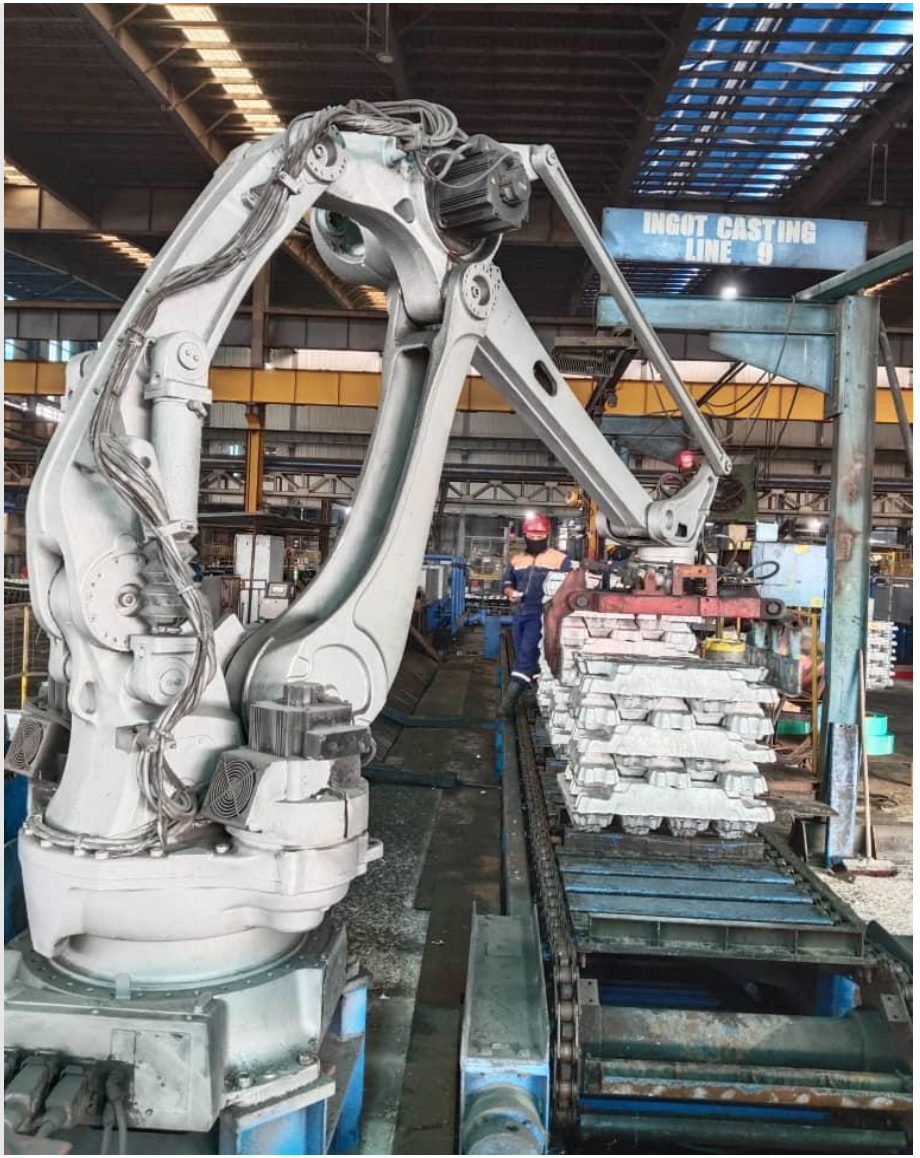
Achieve carbon neutrality.

SELLING LOW CARBON PRODUCT

- Digitalization - Oracle System (Green Technology).

- Introduce Robotic AI – Ingot stacking process.

- Fetch extra premium pricing


INGOT CASTING
LINE 9


INGOT CASTING
LINE 9

Low Carbon Aluminium Products

INGOT P1020

WIRE ROD

BILLET

INGOT A356

As a result of containerized products, waste is generated and converted into by-products

- **Recycle materials into nearby industries (e.g., strengthening cement products)**
- **Achieve zero landfill waste**
- **Eliminate waste disposal while maintaining a zero-carbon footprint."**

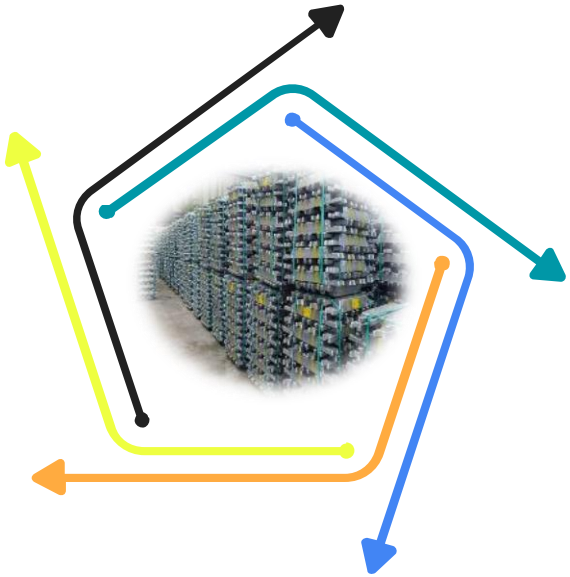
Sustainability Practice

1. Governance

- ✓ Enhancement of sustainability governance

2. Sustainability Strategy

- ✓ Establishing strategy for Groupwide implementation.



3. Integrated Risk Management

- ✓ ESG risk integration (including materiality assessment and stakeholder engagement)

4. Operations

- ✓ Environmental management.
- ✓ Occupational health and safety management.
- ✓ Sustainable supply chain management.
- ✓ Human rights management and due diligence.
- ✓ Human resource management.
- ✓ Information technology management.

5. Performance Monitoring

- ✓ ESG performance monitoring.

Products Containerization Process









- Plants are powered by grid-hydro (Primarily), a renewable energy sources.
- Produced low carbon products and certified.

Containerization Approaches

- Electric Forklift - Energy Efficient Equipment & Low carbon.
- Digitalization - Oracle System (Green Technology).
- Automation AI – Ingot stacking process.
- Using sustainable packaging materials (Recyclable).
- Conduct regular manpower trainings for efficiency and productivity. Increased human capital.
- Regular research and innovation for technology upgrading.
- Review Policy, Standard Operating Procedure and Regulatory based on new technology adaption.

Certified Aluminium Stewardship Initiatives (ASI) for all Exported Finished Products

Principles In The Standard of ASI

- Business integrity
- Policy and management
- Transparency
- Material stewardship
- Greenhouse gas emission
- Emissions, effluents and wastes
- Water
- Biodiversity
- Human rights
- Labour rights
- Occupational health and safety

ASI Certification

ASI CERTIFICATION
PERFORMANCE STANDARD

PRESENTED TO

PRESS METAL BINTULU SDN BHD

CERTIFICATE NUMBER	ASI STANDARD	CERTIFICATION LEVEL	ASI ACCREDITED AUDITOR
226	PERFORMANCE STANDARD (V2 2017)	FULL CERTIFICATION	DNV BUSINESS ASSURANCE SERVICES UK LTD.

DATE OF ISSUE	DATE OF EXPIRY	CERTIFIED SINCE
10 OCTOBER 2022	9 OCTOBER 2025	10 OCTOBER 2022

AUTHORISED BY

Aluminium Stewardship Initiative Ltd
ACN 606 661 125, Australia
info@aluminium-stewardship.org

Validity of this Certificate is subject to continued conformance with the applicable ASI Standard and can be verified at www.aluminium-stewardship.org

CERTIFICATION SCOPE

Aluminium Smelting, Aluminium Re-melting/Refining, Casthouses and Aluminium Dross Internal Recovery Press Metal Bintulu Sdn Bhd (Sarawak, Malaysia).

ASI CERTIFICATION
PERFORMANCE STANDARD

PRESENTED TO

Press Metal Sarawak Sdn Bhd

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CERTIFICATION SCOPE

Aluminium Smelting, Aluminium Re-melting/Refining, Casthouses and Aluminium Dross Internal Recovery at Press Metal Sarawak Sdn Bhd (Sarawak, Malaysia).

Achievement on GHG & ESG

- ISO 14001:2015 Environmental Management Systems
- OSHAS 18001:2007 or ISO 45001:2018 Occupational Health and Safety Management Systems
- ISO 9001:2015 Quality Management Systems
- ISO 50001:2018 Energy Management System effective 22nd Dec 2023 until 21st Dec 2026.
- Prime Minister's Hibiscus Award 2019/2020 ("PMHA") Exceptional Achievement in Environmental Performance.

Challenges throughout the entire process, encompassing vessel operations, unloading systems, conveyor belts, silos, production, casting, and containerization.

- New technology – Evolution of technology (Technological Development).
- Geopolitical issues.
- Equipment supply – Right replacement of modern equipment.
- Limitation of infrastructure (Ports).
- Human capital (Training and skills).
- Authority Policies.
- Energy consumption -Transition to renewable energy costly and complex.

Advantages

- Strategically located in Samalaju Industrial Park.

a) From Bintan (Alumina) 48 hours – Less gas emission.

b) From Bintulu Port to Far East export more than 50% (Less gas emission).

- Stable and reliable energy supply - Hydro power.
- Partnership with the Port on cargo handling.
- Low Carbon Finished products - Strong market demand.
- Stakeholder or top management with strong leadership focuses on efficiency, process optimization and execution of task.
- Integrated aluminum producer – Upstream, Midstream & Downstream.

Thank you